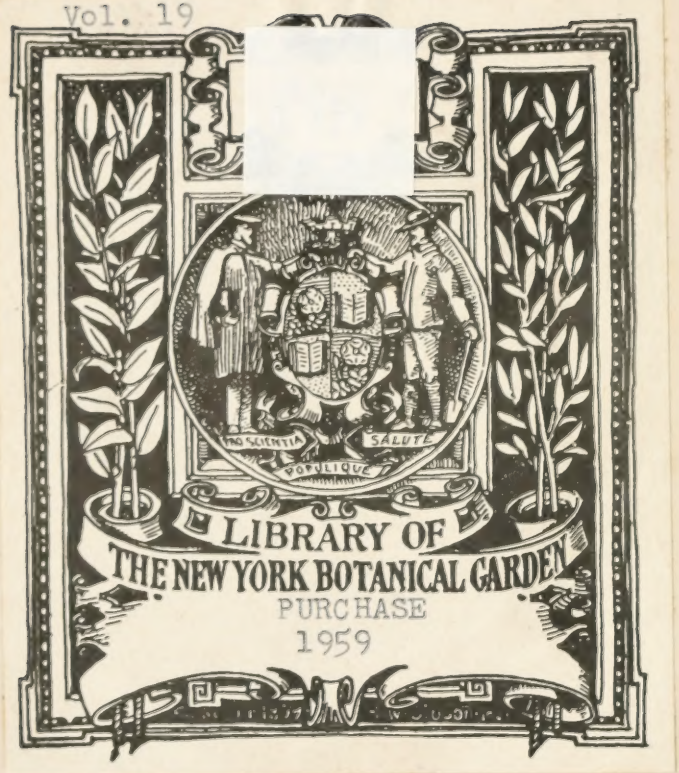
Vol. 19





"ENGRAVED EXPRESSLY FOR THE GARDENER'S MONTHLY."

T. SINCLAIR & SON, LITH. PHILA.

VITIS HETEROPHYLLA.

The Gardener's Monthly

AND

Horticulturist,

DEVOTED TO

HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

EDITED BY

THOMAS MEEHAN,

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Edited by THOMAS MEEHAN.

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FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

Trees always give a great value to an estate, and, as they grow up, not only really add to the beauty of the place, but much lessen its working expenses. They also give a little wildness to the spot, which is in itself a beauty; for, when we speak of neatness as essential in a garden, we mean of course, those parts which one would be expected to keep neat, and which will look all the more neat for having a little wildness to contrast with them.

It is a pleasure to note that the taste for trees is increasing. They bring us the best form of beauty, and in a state that does not cost much to keep. And not trees alone, clumps of shrubbery often have a beautiful effect, and, once planted, require no care for many years. They may be selected from amongst the Spiræas, Lilacs, Syringas, Mock Orange, Upright Honeysuckles, Weigelas, Deutzias, Forsythias, Elægnuses, Pyrus japonica, Hypericum, Willows, Almonds, Calycanthus, Dwarf Horse Chestnuts, Dogwoods, Purple Hazels, Snowdrop Trees, Bird Cherries, &c.

Some judgment is required in pruning flowering shrubs, roses, etc., although it is usual to act as if it were one of the most common-place operations. One of the most clumsy of the hands is commonly set to work with a pair of shears, and he goes through the whole place, clipping off everything indiscriminately. Distinction should be made between those flowering shrubs that make a vigorous growth, and those which grow weakly; and between those which flower on the old wood of last year, and those which flower on the new growth of next season, as the effect of pruning is to force a strong and vigorous growth. Those specimens that already grow too strong to flower well, should be only lightly pruned; and, in the same individual, the weakest shoots should be cut in more severely than the stronger ones. Some things like the Mock Oranges, Lilacs and others, flower on the wood of last year—to prune these much now, therefore, destroys the flowering; while such as Altheas, which flower on the young wood, cannot be too severely cut in, looking to that object alone.

Wherever any part of a tree does not grow, freely, pruning of such weak growth, at this season, will induce it to push more freely next year. All scars made by pruning off large branches, should be painted or tarred over, to keep out the rain. Many fruit trees become hollow, or fall into premature decay, from the rain penetrating through old saw cuts made in pruning. Also the branches should be cut close to the trunk, so that no dead stumps shall be produced on the tree, and bark will readily grow over. Many persons cut off branches of trees in midsummer, in order that the returning sap may speedily clothe the wound with new bark, but the loss of much foliage in summer injures the tree, and besides, painting the scar removes all danger of rotting at the wound.

OCT 23 1959

COMMUNICATIONS.

HARDY RHODODENDRONS.

BY SAMUEL PARSONS, FLUSHING, L. I.

The remarks that have recently appeared in the *Gardener's Monthly* on the subject of hardy Rhododendrons have been both interesting and true. It has seemed, however, that certain distinctions or definitions should be fixed to place the matter before the general public in just the practical light intended. It is undoubtedly true that a very large variety of Rhododendrons may be enjoyed in America by means of protecting boughs, nooks of larger trees, and light cellars; but it is likewise true that the inexperienced need some explanation as to what varieties constitute the hardy and tender portions of the series. To express better the character of this hardiness, all so-called hardy Rhododendrons may be divided into three classes, and, for convenience, termed *hardy, almost hardy,* and *tender,* for scarcely any variety remains absolutely uninjured under conditions that occur at wide intervals, and all may retain their beauty with protection throughout the winter.

The first includes such as may be planted in ordinary positions, excepting bleak, north-west exposures, and situations close to buildings where heat and cold are naturally concentrated by reflection. This class consists of hardly more than a dozen varieties of the nature of Roseum Grandiflorum, Bicolor, Everestianum, Purpureum Grandiflorum, Album Elegans, Mrs. Milner, H. W. Sargent, Caractacus, Charles Bagley, and Lady Armstrong, and comes almost, if not entirely, of an improved pure Catawbiense strain. Peculiar conditions of health, grubs at the root, &c., may sometimes induce an apparent delicacy, in above varieties, that is very delusive.

The second, and *almost hardy* class, may be enjoyed very generally by planting in sheltered corners, and covering loosely, both head and foot, with boughs and leaves to break the force of winter winds. The discoloration of the leaves, that will now and then occur, quickly disappears with the new growth. As representatives of the class, may be mentioned Lee's Dark Purple, Blandyanum, Mrs. McClutton, Scipio, Atrosanguineum, Titian, Minnie, Purity, Stella, Mrs. Halford.

The third class, containing a number of varieties apparently hardy in England, should never be trusted out in our winters without thorough protection, and are still safer housed in a light cellar during that season. Any attempt to disobey this rule will only be fraught with continual dissatisfaction. These kinds include such varieties as Concessum, John Waterer, Barclayanum, Sir Robert Peel, Michael Waterer, and many other beautiful high-colored sorts. Rhododendrons, even in this class, require the maturing effects of frost, hence the use of a greenhouse cannot be advised, for, even unheated, a certain freedom from frost and induced precocity exists therein that will probably injure the after growth. If all amateurs and gardeners will observe the above distinctions, and treat their Rhododendrons accordingly, we doubt not that much of the prejudice, now existing against the family, will gradually disappear. Certainly the wonderful success of Mr. Hunnewell and others, in cultivating these kinds, seems almost perfect, and probably the same judgment in management would secure the enjoyment of all recommended by Mr. Anthony Waterer, who undoubtedly stands among the first of European growers.

DOUBLE LILIUM AURATUM.

BY M. H. MERRIAM, LEXINGTON, MASS.

In the November number of the *Monthly* among the new plants noticed is that of a double-flowered Lilium auratum which had appeared in France. It may be interesting to know that about two weeks later, or late in September, I discovered a similar production on one of the plants among my own. There was a perfectly symetrical, well-developed duplicate set of petals, divided, however, nearly, or quite, to the base. The plant was carefully watched in the hope that seed might be secured, but it failed to produce any.

The bulb, however, is labeled, and since learning from your journal the variety of the phenomena, I shall watch its future flowering with great interest. Subsequently, another plant seemed to be repeating the same phenomena, but on development it proved to be an irregular malformation.

AMERICAN TUBEROSES.

Having occasion to investigate the comparative value of Italian over American bulbs, as had been asserted by distinguished horticulturists, I made particular enquiry of several florists in my neighborhood who are in the practice of forcing for the market, and their tes-

timony was unanimous in favor of Italian bulbs, for which they were willing to pay a larger price, asserting that the yield of flowers was from 15 to 20 per cent. more from Italian than American grown bulbs. This did not apply, however, to Florida grown bulbs, concerning which I could get no information.

CONSIDER THE FLOWERS OF THE FIELD.

BY W.

Nothing on earth seems to yield such serene and enduring content as the acquirement of a genuine love for plants of all sorts. Is it in part owing to that annual resurrection which makes them ever new and attractive, like the presence of a dear friend after a term of absence? We become attached to animated beings, but they die, and we see them no more, and presently we forget them. But there is something wonderfully adherent in the constancy of the lover of *plants*, and something incomparably exalting in their influence upon those who care for them for their own sakes.

A letter just received from an old friend whom I knew very long ago as fond of garden recreations and experiments, affords an instance of this genial influence. He is now on the verge of 80, yet he is still as fresh and as full of talk about plants and planting and greenhouse shelter, and apparently as cheerfully occupied with them as ever. What is the secret that secures such pleasure even in the very winter of life? Is there an elixir only, or is there a *religion*, a *God's love*, in this caring for the flowers of the field? and is it their endless variety that makes these quiet friends never tiring, or is it the continual change in each one that keeps contemplation ever fresh like the Vestal fires? For each one has its own orbit—passing through the glories of summer, the autumn decline, the winter sleep, and re-appearing again and again forever in a vernal resurrection. If the rainbow is a symbol of God's favor and protection, are not the bright plants which the Creator seems to have pressed upon our notice by causing their presence in every nook, a manifestation of His favor, a glimpse of good things to come? For if the grass does not die, but only sleeps, much more shall not we, nor our resurrection be less glorious.

Those pregnant verses in Genesis which give so much of the world's vast history condensed in so few lines—do they, when they describe Adam's life and work in a garden—do they mean that his race owes its superiority over the other races of men adverted to in the sacred lines because of having learned to till and keep a garden, to win the service of animals, and to live quiet and harmless, yet actively busy and observant lives?

In the times when strife and ferocity prevailed more than now, it was said that "Whom the God's love die young." But there are abundant cases of God's manifest favor being shed upon and continued to a far old age, as in the case of my friend.

Here, then, is a path safe to walk in. In it are to be found sweet content and serene happiness, and this being so, our churches, and yet more our schools, should guide at an early age the inclinations of all children to the employments and the pleasures of the garden, giving practical lessons in this first of all arts—the one upon which all the glory and the strength of our race are founded.

Nothing will do so much to advance universal comfort and content as thus imparting, universally, a love for the life-assuring art of making grass grow and trees bloom. Then, and not till then, will the implements of war be wrought over for peaceful uses; and then, and not till then, will all men live without dread of penury, or tyranny, or punishment.

For then they will recover the lost Eden, and extend over all the earth that Mesopotamian Paradise in which the race had its germ. They will understand the dangerous admixture of good and evil that has kept all the offspring of Adam in a fever for thousands of years, and rejecting the evil, will gradually grow under God's favor into the perfection of humanity.

MOSAICULTURE.

TRANSLATED FROM THE N. Y. COURIER DES ETATS UNIS.

Mr. Nardy, horticulturist at Hyères, south of France, one of the French delegates to the Centennial Exhibition in Philadelphia, and President of the French Workingmen's Delegation to this country, has permitted us to look over his traveling notes, and we extract the following, showing us the present state of gardening in France:

"I have," writes Mr. Nardy, "made a grand prom-

enade right through France, from the southernmost coast on the Mediterranean to Havre on the channel, and there are certainly great differences of soil, climate and habits, and of natural products, between Provence and Normandy. One passes pretty much through the entire scale of pomology—from the orange, which ruined Atalanta, to the apple that ruined Mother Eve. Nevertheless, science seemingly generalizes proceedings and helps nature propagate her products from one zone to the other. Hence, I find the gardens ornamented pretty much all over with the same plants and on the same artistic plan. I have started from Nice, the city of flowers; have passed through Lyons, Dijon, Paris, and reached Havre, and have found everywhere throughout France a kind of comparatively recent garden decoration, called Mosaiculture. The word is new and known only by specialists and amateurs. It might, however, be universally adopted, because it tells at once its meaning, expressing as it does an artistical disposition of plants, leaves and flowers, of such shades as will form masses, beds, wreaths—in fact, all sorts of designs, which are truly vegetable mosaics. I have seen the most charming specimens, and I will bring here a few of them to mind.

"In Lyons, the place where art, closely allied with industry, creates tissues which are the admiration of the world, horticulture stands in high honor; and possibly the delicate taste for it enters far more than we think into the inspiration of the workingman—artist. Public and private gardens are numerous, rich and well-kept. The Parc de la Tête d'Or for, instance, with its magnificent shade-trees, its vast lawns, its elegant greenhouses, showing not only a natural love for flowers, but also profound notions of the horticultural art and science. In this noble park have I found the best compositions of vegetable mosaic. Long and wide beds (platebandes) and immense massed groups present a great variety of brilliant and select effects. The divers varieties of Alternanthera and Teilanthera; of the various Coleus, of Achyranthus, of Amaranthus melancholicus ruber, etc; the Mesembryanthemum tricolor, the Sedum carneum, the fine Centaurea candidissima, the Gnaphalium lanatum, the golden-leaved Matricaria, etc., are planted so as to form initials or words, or to represent richly shaded elegant ribbons, or complicated arabesque figures, or pretty designs of *marqueterie*, etc.

"Dijon, the capital of Burgundy,—where, almost as soon as you get into it, there rises to your palate the flavor of those fine wines, which delight the French as well the inhabitants of this globe,—Dijon also aspires to a high degree of floriculture. In the ornamental part of its botanical garden I saw also very successful mosaic. There I have seen and afterward also found in Paris—but what don't you find in Paris of anything fine that has been produced anywhere in the world?—a happy use in mosaic compositions and in borders of Alyssum maritimum fol. variegatis; a charming plant, compact, low, almost a creeper, resembling somewhat Sedum carneum, but apparently more robust and vigorous.

"Paris has wiped out the traces of vandalism and has got a new set of jewels in her gardens. She still, and more than ever, is the capital of the kingdom of flora, just the same as she is the capital of France and of civilization. Her Parc Monceaux is the richest floral gem in the world. The plan in both its ensemble and its details is admirable, and it is excellently kept up. From the mosaic composition in it I quote:

"'A mass of Pelargonium zonale with white spotted leaves mixed with Perilla nankinensis, with Lobelia erinus—charming effect.

"'An oval formed of ribbons of Coleus of well-contrasted shades, bordered with an edge of Lobelia erinus, Crystal Palace.

"'A mass of Pel. zonale foliis sanguineis mixed with Centaurea candidissima, edged all round with Lobelia erinus and Alternanthera.

"'A mass very much shaped like a cupola (bombé) dominated over by a strong growing Agave atrovirens, round which there is a beautiful mosaic of Althernanthera, Sedum carneum, and other low growers.'

"A good many isolated specimen shrubs on lawns are set in a setting of plants of one single color, and that a brilliant one, of either leaf or flower; or of a mosaic. These settings look like flowery nests put in the grass.

"On the sides of a large lawn there rises a heavy mass of Acer negundo with spotted leaves, rounded by a double border of Pelargonium zonale, with flowers of a brilliant red and salmon. The effect of it was both powerful and charming.

"But I would not be able to finish were I to enumerate all that is seductive in this admirable park, half mundane, half mysterious; one of the glories of Paris and yet hardly known to the multitude.

"Havre calls me, and there, too, I find mosaics

in full bloom. Havre has superb gardens, notably the one before the City Hall, which is truly a little paradise of a garden.

"On a bank leaning against a deep mass of high shrubs I saw perhaps the most successful of mosaic compositions; oblong border of divers kinds of Alternanthera and Teilanthera in large festoons. On a white centre letters of a yard length, formed by Mesembryanthemum tricolor and Alternanthera paronychoides, edged with Matricaria aurea, compose the words—City of Havre. The execution is admirable and the effect of it is striking.

"I would further instance: a round group representing the national colors; another large design composed in this way: centre-piece, Cineraria purpurea spectabilis; border, first dwarf Dahlia, white flower, round which second border Amaranthus mel. ruber, &c. But I must limit myself, my object being to draw my fellow-horticulturists in America to this interesting subject of Europe, whilst in turn I shall borrow some points from their studies, their works and their experience."

EDITORIAL NOTES.

Preserving Spikes of Pampas-grass.—Mr. Henry Vilmorin, of Paris, communicates the following to the London *Gardener's Chronicle*:—"I have always found the best plan for preserving the spikes of Pampas-grass in perfect condition to be the following:—Cut the stems before the spikes are half out of the sheaths, store them in a dry place and leave them undisturbed till entirely dried, then remove the leaf which partly envelopes the spikes; the latter will appear perfectly bright, and with a silky gloss on them, only they are rather stiff; then submit them carefully to a goodly heat, either in a well-heated oven, or, better still, before a brisk fire, when each floret will expand, and give the spike the feather-like appearance so much appreciated. The spikes prepared by that process will not drop one of their glossy pistils, and will keep for any length of time if kept free from the tarnishing effects of dust."

Weeping Sequoia Gigantea.—An illustration of a beautiful Weeping Sequoia in the London *Gardener's Chronicle*, makes us feel a renewed regret that this tree is so utterly a failure in the Atlantic States.

Beautiful Specimens of Trees.—It would be a pleasure to record in our pages the heights and dimensions of rare and favorite trees. These often get placed on record in other countries, but we have little of it in our own. The following is from the London *Gardener's Chronicle*:—"It may be interesting to our readers if we name some of the fine specimen ornamental trees growing on their grounds, out of the many hundreds which are to be seen there. A beautiful tree of Abies Nordmanniana, 14 feet high (one of the finest of all evergreens); a Cut-leaved Alnus, 25 feet high; a Willow-leaved Ash, 20 feet; a Weeping Birch, 30 feet high, wide and spreading; Purple Beech, 20 feet high; Cut-leaved Weeping Birch, 50 feet high; a Salisburia, 30 feet high; Oak-leaved Mountain Ash, the original tree brought to this country, 20 feet high, the same in diameter of the head; and specimens of the following Magnolias prove perfectly hardy, namely, Soulangeana conspicua, tripetela, and Norbertiana. M. macrophylla requires a slight protection in winter, as well as M. Thompsoniana. M. grandiflora will not succeed out of doors."

And here is an account of another:—"We learn from the *Gardener* that there are two enormous Irish Yews growing in the kitchen garden at Netherplace, near Mauchline. The largest is 33 feet in spread of branches, and its height is 29 feet eight inches. Its companion is 32 feet six inches in spread of branches, and 30 feet in height. They are dense and in perfect health, being of a rich dark green. These two trees stand within a stone's throw of Burns' cottage."

Enonymus radicans variegata.—All lovers of low growing hardy evergreens, know this plant by this time, as it has been offered by leading American nurserymen for some years past. But it is not known that it has handsome berries. Of this the London *Gardener's Chronicle* says:—"The variety or species radicans, both the green and variegated states, is very ornamental and suitable for covering small spaces of wall. Like the Ivy it emits aerial roots very freely, and attaches itself to rocks or walls, and, therefore, requires little or no nailing. The ordinary broad-leaved variety, latifolius of the nurseries, with rich, dark green, glossy foliage, is certainly one of the most ornamental of small-growing evergreen shrubs, and wherever it is hardy, should be largely planted. Unfortunately, its handsome fruit is extremely rare in this country. Indeed, we never saw it on living plants until this season,

but we have heard that a plant of it fruited at Brighton last year. The plant we saw in fruit was about 2½ feet high, growing in a small pot outside a cottage window between Turnham Green and Kew Bridge. The crimson fruit is nearly spherical, or more or less flattened in the direction of its vertical axis, and from ¾ to 1 inch in its greatest diameter, and it is more or less distinctly two or three-lobed, the lobes answering to its two or three cells. If gardeners could succeed—and we see no reason why they should not—in inducing this fine shrub to flower and fruit as freely as the Holly or Aucuba, it would add considerably to its attractions in the autumn. It is a singular coincidence that the variety of radicans with white-edged leaves has fruited in France this season. A figure of it is given in the *Revue Horticole*, from which it appears that the fruit is much smaller than that of E. japonicus latifolius."

Fruiting of Chionanthus Virginicus.—The following is from the *Gardener's Chronicle*:—"In a recent number of the *Revue Horticole*, Messrs. Transon record a curious fact concerning Chionanthus virginicus. It is this, that when grafted on the Ash it never produces any seed, although it flowers profusely, whereas quite small plants on their own roots ripen and seed in abundance. They further recommend grafting this handsome white-flowered shrub on the roots of its own species, because when grafted on the Ash it enjoys only a very short life, and seedlings grow very slowly during the first few years. This shrub is not generally planted as it deserves to be, for its ornamental merits are considerable." It is not generally known that this plant is polygamous. Hence, though the imperfect organs may be fully developed by peculiar modes of culture, it may be that a barren form was used in the grafting.

NEW PLANTS.

Purple-leaved Daphne.—We noticed this beautiful plant among the Centennial trees exhibited by Messrs. S. B. Parsons & Son, of Flushing, N. Y. By the following we note that it is also attracting attention in England: "Those who are fond of ornamental-leaved hardy shrubs should make a note of Daphne japonica atropurpurea. The effect which it produces among low-growing shrubs is similar to that of the Copper Beech among trees, and we have none too many of such things for enlivening our shrubbery borders. We saw some nice plants of it lately in Mr. Kinghorn's nursery at Richmond."

A Cream-colored Red Cedar.—Describing "Juniperus Virginiana elegans," Messrs. Lee say: "This very elegant variety of the Red Cedar was raised from seed in our own grounds in 1869. It is scarcely necessary to remark upon the hardiness of this plant, but it is due to its character to state that the elegant cream-colored variegation with which the whole plant is suffused is perfectly constant, and has never been injured by frost or burned in the least degree by the hottest sunshine, although fully exposed in the open air. The plant is of neat and free growth, and received the honor of a First-class Certificate from the Floral Committee at South Kensington, in July, 1875."

New Cornelian Cherry.—Under the simple and effective name of Cornus mascula aurea elegantissima, Jacobi et Caroli Leei, an advertisement in the *Gardener's Chronicle* tells us that "This elegant and lovely hardy shrub was raised from seed in our Isleworth Nursery, and has been proved to be perfectly constant in its beautiful variegation. A broad margin of pure gold surrounding a bright green centre is of itself a sufficient attraction, but when in July the tips of the leaves become suffused with the brightest carmine, it is impossible to give an idea of the beauty and elegance of the plant, which will bear a favorable comparison with the best variegated stove or greenhouse exotics. Suffice it to say, that it has been seen and admired by many amateurs and nurserymen, and has been awarded a First-Class Certificate at South Kensington. The habit of the plant is semi-pendulous and very graceful."

A New Pinus.—The *Gardener's Chronicle* says: "A new Pinus, related to P. orientalis or P. Menziesii, has been discovered in the Balkan peninsula by Professor Paneic." If by "Pinus," Abies orientalis is meant, there is plenty of room for the new discovery to spread itself in.

Crocus speciosus.—We learn from the *Gardener's Chronicle* that Crocus speciosus is now very charming, flowering in pots in a cold house as well as in the open border. Such a welcome autumnal flower deserves some protection, for

out-of-doors at this season of the year its flowers are but very short-lived. What is now cultivated as Crocus speciosus is supposed to be a garden seedling; the flowers are of a deep blue-like color, brightest on the interior, where it is also handsomely pencilled with dark lines.

Ampelopsis japonica.—This is a Virginian creeper that does not creep, and belongs more properly to the class of furnishing plants than climbers. Its growth is that of a diffuse wiry bush, and at any time while it is in leaf it is well adapted for enriching with bright foliage large vases on terraces and in entrance halls and conservatories. At the present time it is in brilliant color, the prevailing tone being fiery orange-red, shading one way to yellow and another way to purple. It is a grand plant for the front line of the shrubbery, and might even be used in large beds and borders, for the knife would keep it within bounds, and it does not run as other species of ampelopsis do.—*Gardener's Magazine.*

Moræa (iris) fimbriata.—This is a very remarkable plant, which well deserves to be much more generally cultivated than it is. Brought from China to England about the beginning of the present century, it found its way to Paris, and was figured in that magnificent work, "Le Jardin de Cels," in the eighth year of the Republic; also in Curtis' *Botanical Magazine* under the name of Iris chinensis. It was likewise called Evansia chinensis, in compliment to Mr. Evans, who introduced it; it then went out of fashion. It is found for the last time in Lee's catalogue, in 1830, and we look for it in vain in the French, Belgian, German, and English catalogues of our time. Notwithstanding this neglect, it well deserves the attention of amateurs for its beauty and elegance. It differs from other Irises in having fringed petals, and might well rival many of our Orchids in the brilliancy of its colors (pale blue striped with bright yellow), its lovely trusses of bloom, delicate odor, and the long period of time during which it is in flower. It succeeds best when grown in rather small pots; when the spring frosts are over these must be plunged into the ground in a warm situation; they will require plenty of water. About the end of October they should be taken up and placed in a greenhouse, or even in a cold frame, care having been taken to pot off the young shoots. Thus treated, the Moræa will bloom for months. Peat mould suits it best, but it will flower and thrive in almost any kind of soil.—*Garden.*

Saxifraga japonica.—There are many handsome autumnal flowers, but few excel the Japanese Saxifrage in beauty and grace. It succeeds best as a pot plant, left undisturbed for two years. It has large, glossy, dark green leaves which remind one of those of Dondia epipactis, out of which spring many tall and branching stems of feathery white flowers. The four upper petals are short and nearly even in length, but the lower one is lengthened out into a tail-like appendage, which gives the flowers the appearance of a bird of paradise in full flight. A pot of it with seven spikes of bloom has been in great beauty in my room for the last three weeks.—*H. Harpur Crewe in the Garden.*

QUERIES.

White Berry Pyracantha.—A correspondent speaks of failure with this in transplanting. When set deeper than it grew before, it never fails. It makes no difference though half the plant be buried.

Name of Plant.—"Subscriber," Columbus, O. —Your plant is Viburnum suspensum. We should like to know if quite hardy with you? We suppose not.

Lawn Grass for Oregon.—M. S. B., Portland, Oregon, asks: "Would you kindly advise me of the best grass seed for lawns in Oregon? climate quite wet a portion of the year and quite dry in summer. How would Rhode Island Bent grass do, or would your Pennsylvania grass or Blue grass be better, in your judgment?

[As a general thing rye grass does well in Oregon, and makes a splendid lawn grass. Poa campestris, the Blue grass, also makes a good lawn grass there. Perhaps on a place "wet in winter and dry in summer," Bent grass (Agrostis) would do better, but this is a matter wholly for experiment.—Ed. G. M.]

Akebia quinata Seeding.—Mr. Galloway C. Morris, Philadelphia, writes:—"I notice in the November *Gardener's Monthly* that the Akebia quinata has fruited for the first time, so far as you know, with Mr. Wm. Canby this year. I have had fruit on mine for at least three years. As the fruit gets a little over ripe it bursts open showing multitude of seeds in the pulp. I think that it has no fruit on it this year."

GREEN HOUSE AND HOUSE GARDENING.

SEASONABLE HINTS.

Roses, when they are forced, do much better when the pots are plunged in some damp material. When no better plan offers, they may be set inside of a larger pot, with moss between the space around. All plants that come into flower through winter should have those positions afforded them that have the most sunlight, especially the early morning light. Care must, however, be taken that the material about the plunged pot does not get too cold. For winter flowering, and Roses especially, the flowering is best when the earth about the root is a little warmer than the atmosphere. For watering, water a little warmed is an advantage.

We were speaking here chiefly of window plants. The dry air of sitting-rooms is the great obstacle to the perfection of window plants. The plants should be sprinkled or syringed with water as often as practicable, and the leaves washed as often as any insects or dust appear on them. In warm rooms, they should be kept in the coolest parts, and as near the light as possible. For hanging plants there is now an increasing taste, as they afford so much scope for arranging the forms, and for beautifying the windows. Linaria Cymbalaria or the Kenilworth Ivy, Variegated Spider-wort (*Tradescantia variegata*), Money-wort (*Lysimachia nummularia*), the Creeping Saxifrage (*Saxifraga sarmentosa*), and Common Ivy, are among the most useful of commoner things. Then there is the Australian or German Ivy, as well as the many varieties of the evergreen Ivy, and many other things of a choicer character, if gas is not burnt in the room.

In the greenhouse, air may be given in fine weather; but if the temperature is not allowed to go much above 45°, much will not be required. The stereotyped advice to give air freely on all occasions when not actually freezing, is about on a par with the absurd practice that lays the foundation of consumption in a child, by turning it out almost naked in frosty weather to render it hardy. Many strike their *Fuchsias* now, from which they desire to make very fine specimen plants. All kinds of plants that are required for Spring or Summer blooming, should be propagated whenever the time permits. All growing plants, as Calceolarias, Cinerarias, Chinese Primrose, Geraniums, and so on, should be potted as often as the pots become filled with roots. Plants which have a growing season, and one of rest, as Rhododendrons, Azaleas, Camellias, &c., should be potted if they require it, just before they commence to grow, which is usually about the end of this month. In potting, a well-drained pot is of great importance. The pots should be near one-fourth filled with old potsherds, broken small, and moss placed over to keep out the soil.

Daphnes like a cool, humid atmosphere, and are very impatient of heat. The best we ever saw were grown by a farmer's wife, who had an old spring-house converted into a greenhouse to preserve her oranges, oleanders and daphnes over the winter. The natural heat from the spring was quite sufficient to keep out frost, and it was surprising how charmingly the plants throve in this, to a gardener, rough-looking plant-case.

It is better to keep in heat in cold weather by covering, where possible, than to allow it to escape, calculating to make it good by fire-heat, which is, at best, but a necessary evil. Where bloom is in demand, nothing less than 55° will accomplish the object; though much above that is not desirable, except for tropical hot-house plants. Where these plants are obliged to be wintered in a common greenhouse, they should be kept rather dry, and not be encouraged much to grow, or they may rot away.

After Cyclamens have done blooming, it is usual, at this season, to dry them off; but we do best with them by keeping them growing till Spring, then turning them out in the open border, and re-pot in August for winter-flowering.

Mignonette is much improved by occasional waterings with liquid-manure.

In managing other plants, where there are several plants or varieties of one species, and command of different temperatures, it is a common plan to bring some forward a few weeks

earlier than others in the higher heat, thus lenghtening the season of bloom. This applies particularly to Camellias and Azalias; the former are however, not so easily forced as the latter, being liable to drop their buds, unless care be taken to regulate the increased temperature gradually.

COMMUNICATIONS.

VERBENA RUST.

BY CHAS. HENDERSON, JERSEY CITY HEIGHTS, N. J.

I see there has been some discussion of late as to what is the cause of the "Verbena rust," or whether its ravages are the work of an insect or a fungus. This is easily determined; let any one place an affected leaf under a microscope of ordinary power, say two or three hundred diameters, and the insects (mites?) and eggs will be seen almost invariably; while on leaves that are not affected, neither eggs nor insects will be seen. As far as my observations have gone, on all leaves affected with that disease called "verbena rust," insects will be found by aid of the microscope, varying somewhat in appearance in the different varieties of plants, as it is not confined to the verbena by any means, being found on fuchsias, heliotropes, petunias, pentstemons, and even on some of our native plants growing by the roadside. Now as to the cause of the disease, which is the most important question to get at, I am led to believe that it rarely if ever attacks plants unless their vigor or vitality has been checked by some cause or other. My reason for this opinion is, that it is found to attack verbenas, heliotropes, &c., when the roots become "pot-bound," or from the opposite condition when "over-potted;" or, in short, any cause that will arrest the healthy growth of the plant. This would imply that the insect is the consequence and *not* the cause of the disease. Our practice here in growing verbenas is to take for stock, cuttings off our healthiest plants about the first of March, and to grow them on without check until May; then to plant them out in freshly trenched or subsoiled ground which has been heavily dressed with rotted manure. Plants so treated, I believe, have never once been affected with rust in the open ground. I may state, however, that by mid-summer, that on all plants to be used for propagation, the flowers are cut to prevent the plants from weakening by seeding. Thus treated, by October the plants will have made the soft, succulent growth necessary for cuttings. Our propagation of verbenas for our main crop is begun usually about the middle of October, and they are rooted slowly without fire-heat. After being potted they are kept in a temperature averaging 45° at night. This completes our whole round of operations in the culture of verbenas. We are now growing varieties that were imported twenty years ago, which are as free from rust as our seedlings of last year.

[We are glad to get these excellent notes. There is yet much to learn about verbena rust. What is the insect, for instance, referred to? Send some specimens to Prof. Riley, at St. Louis; Prof. Packard, at Salem, Mass.; or Prof. Rathvon, at Lancaster, Pa. For our part we do not know why the insect should wait for sickly plants before attacking them. No other insect with which gardeners have to deal are so fastidious. These and other matters still need investigation.—Ed. G. M.]

VERBENA CULTURE.

BY W. T. BELL, FRANKLIN, PENNA.

In compliance with your request, that I would send you an article on "How to grow Verbenas well," I have hastily prepared the following:—

As soon as frosts are over in the Spring, select the youngest and healthiest plants to be had, being particular to avoid any that are affected by mildew or rust. The ground where they are to grow requires no special preparation, but should be in good condition and dry. Set the plants in rows, at least two feet apart each way, stir the surface of the soil frequently, during the summer, and destroy all weeds as soon as they appear. The plants may be allowed to flower, but should be gone over at least once a week, and all fading flowers and seed-vessels cut away.

About four or five weeks before frost is expected in the Fall, all flowers and flower-buds should be removed, the plants cut back, so that the branches will be about a foot or fifteen inches in length, and all weak shoots thinned away from the centre of the plant. The soil should be forked over about the plants, and if not already rich, should be made so, by the application of decayed manure or fresh soil.

As soon as the prepared plants have made the proper growth, a few cuttings may be tried, being careful to use only such shoots as are

making a strong growth, and taking nothing but the tender portion of the shoot.

The benches in the verbena house should be so arranged that the plants will all be near the glass overhead: and the heating-pipes should have sufficient capacity to dry off the plants and allow air to be given during the coldest weather, if necessary. The cutting bench should be boarded tightly below and have an extra loop of pipe beneath it to secure a proper under heat. If the weather becomes warm the first lots of cuttings will be likely to mildew, and should be thrown out, even though they may have been potted for weeks.

Endeavor to put in the main crop of cuttings just before the first severe frost, as the later in the season they are struck, the more healthy the plants are likely to be. The cutting bench should be kept constantly moist and shaded from strong sunlight. The temperature of the house, while the verbenas are in it, should be kept as near as possible at from 40° to 45° at night, and fifteen or twenty degrees higher during the day, giving air whenever possible. The matter of temperature is very important, and it is the point where most propagators fail. If these limits are exceeded for any length of time, the plants will become unhealthy, even though they have the best treatment in other respects.

When the cuttings have formed soft white rootlets about half an inch in length, which should require at least eight days, they should be potted into thumb pots, using the ordinary fresh, rich, greenhouse soil. The plants should never be watered to excess, particularly during the short, dull days in winter; neither should they be allowed to become so dry as to cause the leaves to droop.

When well established in the pots, and having made sufficient new growth, a cutting may be taken from each plant and rooted, thus doubling the stock. Each plant thus topped will usually start two or three new shoots; and as soon as these are an inch or two in length the plant may be re-potted into a two or a two and a half inch pot; or the new shoots may again be taken off to make cuttings and the old plant thrown away. This is to be continued through the winter. Whenever there is proper material to make cuttings from it should be used; and as soon as the old plants cease to produce strong shoots, they should be thrown out, and a constant succession of young, vigorous plants kept on hand. In my own practice I seldom re-pot the plants during the winter. Two crops of cuttings are taken from them, and they are then thrown away and their places filled with young plants.

The house should be regularly fumigated with tobacco, at least twice a week, and the plants moved occasionally to prevent their getting too close together, or rooting into the sand on the bench. If this treatment is followed persistently, and the two *tures*, temper*ature* and mois*ture*, are particularly attended to, the plants will grow in almost any kind of soil, and will be perfectly healthy. But there are very few growers who are willing to give their verbenas the unflagging attention they require; and a large majority of the houses will still contain their sweltering, mildewed, sulphur-coated, long-legged, aphis-covered old plants that are such a disgrace to the trade.

VERBENA RUST.

BY HOWARD BRINTON, CHRISTIANA, PA.

Some time ago I saw inquiry in the *Monthly* in regard to Verbena rust, its causes and result thereof: In consequence I beg leave to offer my opinion; of course, like everybody, not without thinking it is *the* correct one. It would seem almost incredulous with some, after a close examination, that this disease or rust is caused by an insect, or rather the larvæ of an insect. In warm sunshiny days, by watching closely in the neighborhood where the plants appear most affected, a small minute black fly may often be seen hovering around over them; sometimes while watering I have seen them rise in myriads almost, from the plants where they alight to deposit their eggs. The fly itself, I do not think, injures the plants any, but it is the larvæ that is so destructible. It is impossible to discern them with the naked eye, but with even a good single lensed microscope they can be seen in innumerable quantities. I do not know of any remedy that will dislodge or destroy this enemy without leaving its injurious effect on the plants also. Tobacco smoke will not answer, as the insect can imbed itself in the leaves of the plant where it can remain unharmed by the smoke. The insect does not confine its attacks to the Verbena alone. I have seen other plants injured in like manner. Heliotropes in particular, that had become pot-bound, I have seen blackened and injured almost beyond recovery. The most effectual and only remedy perhaps, is to encourage a strong,

healthy growth, selecting the best young shoots only for propagating. Give the plants a dry airy atmosphere with plenty of light, in preference to a very damp, close green or hot-house atmosphere.

VERBENA RUST AND VERBENA GROWING.

BY J. M., PHILAD'A.

The two communications in the *Monthly* within a short time past on the Verbena and the rust which attacks it, show an unabated interest in this old and beautiful flower. The rust, for many years past, has been a serious drawback to its growth, many florists failing completely to cope with it, and few indeed are the establishments where the plant can be seen entirely free from the obnoxious pest. Mr. Palmer, in the September number, has told us of a simple remedy of his for the rust, viz., pulverized charcoal applied to the rust spots, which if found a satisfactory one by all, will place us under great obligations to him. Preventives we know are better than remedies, yet it has never been my fortune to see them so well applied that there was no rust to remedy. The Verbena likes nothing better than good rich soil and a cool atmosphere. It will not do to starve it in poor soil—or, look out for the rust. It does not object to a small pot, provided plenty of good food be supplied, and it be not checked in any way. I have seen to-day, as healthy a lot of Verbenas in thumb pots as one could wish for. They were struck in the end of August, from plants from which all rusty ones had been thrown out as they appeared; and potted in soil enriched with manure. No rust has yet appeared, but it most likely will to a small extent, as no collection seems for long entirely free from it. Rust, in my experience, is the consequence of starvation, or of a checked growth from some other cause. This is shown by the fact that even rusty plants when bedded out in Spring, will to a great extent grow out of it, and make healthy growth; and it is said, in California where the Verbena stands out winter and summer, and makes a strong vigorous growth, the rust is unknown.

THE VERBENA.

BY W. C. L. DREW, EL DORADO, CAL.

The Verbena is a native of Buenos Ayres, and was first introduced into England about 1825, imported into this country about ten years later, and created quite a sensation among the florists of those times, maintaining its position as a first-class flower for florists and amateurs ever since.

Within the last twelve years the improvement in this plant, both as regards size and color of the flower, have been wonderful, but it is one of the saddest truths of floriculture that this great improvement in the flower has destroyed the robust, healthy, and good constitutioned plant of old, and given us a more magnificent flowering plant, with a sickly constitution, liable to the attack of insects and disease. With this plant as it now is, we must now deal, and though it seems impossible to restore its former vigor by any means in our power, yet by careful cultivation we can have healthy plants, not it is true, as strong as formerly but still healthy.

First we must have good, young plants, raised from seed; slips will not do, for I find that plants raised from slips are more liable to be assailed by the disease known as rust, and in fact it is always the case that plants attacked by this disease are old plants saved over two or more years, or plants started from slips; therefore I advise all desiring healthy plants to use seedlings.

I sow seed in the Spring as early as possible in hotbeds, and by the time frost is over we have fine little plants; the frames must be opened every day that they can be open with safety.

Have your bed prepared, good and rich with well decayed manure; have the soil rather sandy, but if not naturally so, get sandy soil and mix with it, and have it in as warm and sunshiny place as possible; by the middle of May transplant your seedlings; doing so on a cloudy but warm day; see that the soil does not get too dry and I think you will have no cause to complain. To avoid root-lice do not plant two years in succession in the same bed. If you would avoid rust, use no old plants saved over, or plants raised from slips; if a plant gets rusty pull it up and throw it away; better lose one plant than a bed.

FLOWERING OF THE EUCHARIS AMAZONICA UNDER DIFFICULTIES.

BY CHAS. J. HAETTEL, SAN JOSE, CAL.

After many trials I have at last succeeded in flowering the Eucharis Amazonica. Last winter was very hard out here on all kinds of plants that needed more heat than was afforded by Nature.

From the middle of January we could make

no fire on account of the water rising to within six inches of the surface of the ground, so it dried off the Eucharis entirely, and they were standing from January until April in a cold moist temperature, many nights as low as 40°. In April I took pans one foot in diameter, well drained them, and planted six bulbs in each pan, using soil composed of one part peat, two parts loam, with a little well decomposed manure and some leaf mould added. They were then placed in a close frame, having a strong bottom heat, maintaining a high temperature, where they soon commenced to grow. I gave them plenty of water, both at the root and on the foliage, and gradually a little air, until the beginning of August, when they were taken to a cooler place and kept more dry until early in September; they were then again placed in heat, and well supplied with water at the root and on the leaves. The first flowers opened the last days of September, which are most beautiful, being large and pure white, and deliciously fragrant.

EDITORIAL NOTES.

The Verbena.—If in a multitude of counsellors there is wisdom, Verbena growers will be happy to-day. It is a Verbena number. But the Verbena is worthy of all the space the articles occupy.

Musa ensete. — This beautiful ornamental Banana does not seem to throw up suckers as other species do, and propagation is slow. This is why the plants are scarce and dear. One who could increase it faster than now would find it to his profit.

Duchess of Edinburg Rose.—Some fear has been expressed that there may be a spurious variety of this under culture. We do not think there is—the variations we have seen being not unusual in cases where the heavy propagation of a desirable thing is going on. We can say, however, that a bud from Mr. Chitty, Superintendent of the Bellevue Nursery, Paterson, N. J., shows that that firm has the true kind.

Covent Garden Bouquets.—The following from the *Journal of Horticulture* tells what the best bouquets are made of in London: "Some exceedingly effective bouquets are always to be found in the Central Avenue of Covent Garden Market. We noticed one recently which, though formal, was very striking. A white Camellia formed the centre, and from this to the outer edge of the bouquet were six rows at equal distances apart of single pips of Stephanotis flowers —six pips in each row—the angles being filled with Violets, and the whole edged with Maidenhair Fern. Other bouquets were made principally of Camellias. Roses, and Eucharises, with sprays of white and scarlet Bouvardias slightly elevated above the more massive flowers. This arrangement was very chaste and pleasing."

NEW PLANTS.

Dianella aspera.—By the following from the *Gardener's Chronicle* this plant must be very ornamental: "One of the finest blue-berried plants with which we are acquainted is Dianella aspera, and a good example we have recently seen in the temperate-house at Kew. The panicles are very compact, in one case 9 inches long with forty-eight berries, closely arranged on short branches. The berries equal in size a small Solanum Capsicastrum. Several of this genus would be highly ornamental in fruit, but for their excessively lax habit."

Double Geranium—Bishop Wood.—Mr. Harris sends us a specimen of his new geranium, "Bishop Wood," and it proves to be an excellent addition to this beautiful class of plants. The shade of color, which perhaps the ladies would call cherry rose, is novel in double geraniums. The flowers are very large, one in the truss measuring two inches across. The truss is rather small, measuring four inches over, but Mr. Harris says it comes much larger in season.

Sweet-scented Rhododendrons.—A correspondent recently referred to the house culture of Rhododendrons—an excellent idea. The new sweet-scented class of hybrids are worth attending to in this connection. The following new varieties of this class have recently appeared in England:

Countess of Derby.—This is the most beautiful of all half-hardy kinds, being of a compact, bushy habit, and bearing on even the smallest plants, trusses of large pure white deliciously fragrant flowers, a single flower being sufficient to give a delightful scent to a bouquet. A number of plants were exhibited at Manchester last year, and were awarded a First-class Certificate of Merit.

Countess of Sefton.—This was raised from the same parent as the above. The plant is not so dwarf-growing; the flower is white, with a band of rosy-purple on each side of the corolla, which is beautifully fringed on the margin.

Lady Skelmersdale differs from the former in the flower being pure white and more trumpet-shaped, with beautiful even edge; the form is very handsome, the plant bushy and free blooming.

Duchess of Sutherland.—Plant of robust habit; flower pure white, with beautifully fringed margin.

Mrs. James Shawe.—A pure white cup-shaped flower, of great substance; the plant of very bushy habit and profuse bloomer.



PTERODISCUS SPECIOSUS

PTERODISCUS SPECIOSUS.—The *Gardener's Chronicle* recently gave the following figure and description of a greenhouse plant with flowers of a somewhat novel color, introduced by Mr. William Bull, which will most likely prove of value to our greenhouse cultivators, and we reproduce it

here because we have an idea that it will be found a very useful out-door plant in our summer gardening.

"A handsome greenhouse perennial, requiring full exposure to sunlight. It has large globose tuberous roots, the upper part of which is elevated above the earth, producing from its summit a stem which divides into several erect thick branches, reaching 2 feet high, furnished with opposite sinuate dentate leaves, and bearing showy flowers in the axils of the leaves. These flowers are large, with a funnel-shaped tube, and a spreading five-lobed limb of a beautiful lilac or reddish purple color, rendering the plant well worthy of cultivation for its ornamental qualities. It flowers during the early part of the summer. This species has been collected and sent from South Africa by Mr. Naylor, an amateur much interested in horticultural pursuits."

FRUIT AND VEGETABLE GARDENING.

SEASONABLE HINTS.

Cabbages and lettuces in frames for protection through the winter, should have all the air possible whenever the thermometer is above the freezing point; when it is below, they need not be uncovered. They require no light when there is not heat enough to make them grow. Examine for mice occasionally. If noticed, soak peas in water till they swell, then roll in arsenic, and bury in the soil. They prefer these to lettuce when so prepared.

The preparing of manure ready for Spring operations, at every favorable opportunity, should not be forgotten. Next to draining and subsoiling, nothing is of more importance than this.

Much has been said of guano, phosphates, &c. —all very well in certain cases—but nothing is so well adapted to the permanent improvement of soil as manure composed in the main of decomposing vegetable matter. It is always light and porous, thereby allowing air to circulate freely through the soil; it absorbs moisture, which in dry weather is given off to the drier soil slowly, to the advantage of the plants near by; and, what is not a small point in its favor, it aids in giving a dark black color to the soil, which renders it so much warmer in early Spring; and, by so much, better adapted to the early raising of vegetables. It is also a good rule to have the manure well decomposed before using it. There are a few things which do not object to fresh manure, and a still fewer number that might, perhaps, prefer it; but the major part do best in thoroughly fermented material. Leaves, litter, and refuse vegetable matter of all kinds, should be got together at every favorable opportunity, and well mixed in with manure.

In the fruit garden, pruning may be advanced where needed. We say, where needed, because much unnecessary, or even injurious work is done. All weak or imperfect shoots may be cut out, as also all that are likely to interfere by crossing the paths of others. In weak or stunted trees pruning may be severe. Top dressing is best done in the early Fall, but where neglected may be done now. If orchard trees have not been indexed and mapped out in a book, it should be done to secure against loss of labels. A large wooden pine label, with a notch in the upper end for stout copper wire, well painted and the name written while the white paint is dry, is the best label, and should be attached to each tree. The stout copper wire can be made with a large loop so that in ten years or more it will not need untwisting for the branch to grow. Use large labels, and write the name full and distinct so as to be easily seen. Wash the trunks and branches with linseed oil where insects are troublesome, and with colored lime-wash if the bark is scaly and does not seem to fall freely from the tree.

Grape vines may be pruned when the weather seems Spring-like. If left late they bleed. Whether this is much of an injury, or not, is disputed, but it certainly does no good, and it is as well to avoid it. Of course this advice is not for northern vines, which, for some time yet, will be buried under the earth.

Those who plant orchards this Spring, will needs be inquiring what kinds to plant. If for market or profit, it is best to find out what kinds are popular in the neighborhood. If for one's

own pleasure chiefly, a good variety will interest. Even if we were going to plant for profit we should have some variety. If we wanted to set out a thousand trees, we might divide, say nine hundred and fifty between a half dozen of the well-known kinds in the district, but we should set out the other fifty trees in fifty kinds, for the chance that some might be an improvement on the better known kinds, which could then be top grafted with them if found desirable.

COMMUNICATIONS.

SOUTHERN THORNLESS RASPBERRY.

BY MR. W. FOSTER, LOUISIANA, MO.

I notice under the head of notes on "new fruits," by Wm. F. Bassett, that he regards the Southern Thornless as a distinct sort. I have tried it side by side with Turner's Seedling, and they are identical—my Southern Thornless from Indiana, Turner's Seedling from Illinois. They both prove to be well-flavored, good-sized berries, too soft for the market, and canes too tender to stand hard winters here. The Turner is an old variety here, and the Southern Thornless was supposed to be new till tested. The Turner seems to have strayed away, and come back under a new name.

THE TOMATO SEASON PROLONGED.

BY GEN. W. H. NOBLE, BRIDGEPORT, CONN.

The supply of this most healthful and palatable fruit can be extended easily several months after the frost has cut down the vines. I find so many ignorant of this fact that I propose to tell my method.

At the first approach of frost I gather all my well-grown tomatoes of every variety, in fact all, which if ripe would be of use. These I place singly on boards, covering the bottom of any cold frame, or the frame of a hot-bed, put into the earth anywhere. Then put over your sash. Your tomatoes, according to their maturity, will commence ripening, and with care will keep you in supply till well into December. Of course, if one only has sash, he can easily make a frame in which to put his tomatoes under the glass. Any one who has not glass can cover such a frame with an old sheet. Glass is better, because more translucent and defensive against frost. Should the thermometer point to a thorough, deep freeze, cover at night with any old carpet, weeds, straw, or such like protection.

Any vacant space in a cold grapery or a room or attic, with good Southern exposure, will work much in the same way. I have no doubt that if one would but take the trouble to cut off all the leaves from a tomato vine, and then transplant it into the well-moistened earth, of a glass-covered space of any kind, that these fruits would grow and mature long after those out of doors were ruined by the frost. But the tomatoes picked from the vines are just as good, more can be crowded into the same space, and they can be better gathered for the table.

Now, I have made this statement so lengthy because I find so few who at once take up the idea of this extended season, with all its proper appliances, on the mere mention of this help in the garden.

If any body has got a better way, let him give it in the *Monthly*. If every one only told the new things he observes, we should all, by and by, get a good deal wiser in the methods and products of our gardens.

A GOOD GRAPE MANUAL.

BY W. H. W., READING, MASS.

I have just been looking over the "Bushberg Catalogue" of grapes, and I cannot but think you may be doing a kindness to some of your readers by calling their attention to it. It is not a mere dry catalogue as its modest name might lead one to suppose. It is a large pamphlet of about eighty pages, containing a clear and simple treatise on the best modes of growing, grafting, pruning the vine, accompanied by descriptions (many of them finely illustrated) of almost every variety of hardy grape of any value now in cultivation. It seems to me, considering the amount and value of its information (especially about the most recent varieties) and the exceeding moderateness of its cost, to be the best treatise for beginners and amateurs with which I am acquainted. And if any such one wishes for an admirable guide or for reliable information concerning any of the varieties now before the public, let me advise him to send twenty-five cents to Messrs. Bush & Son and Meissner, Bushberg, Missouri, and ask for a copy of their Illustrated Grape Catalogue.

[We endorse the remarks of our correspondent. The Bushberg Catlaogue is more than a catalogue—it is a valuable contribution to the literature of the grape.—Ed. G. M.]

THE BLENHEIM PIPPIN.

BY W., TYRONE, PA.

This apple supplies a notable proof of the baselessness of the common idea, that an apple originating in a certain locality, must, of course, possess a constitution specially suited to that locality or latitude. A second thought ought to disprove such a notion, for if it had any foundation we could soon acclimatize Southern grains, &c., by merely planting their seeds in Northern soil.

The Blenheim is an English apple. Now, the sorts of apples grown in England, like the kinds of wheat, &c., grown there, are such as will succeed well in humid, cool air, and with slowly moving growth. They mostly fail in our climate, some one or other, or all, of the new conditions being unfavorable. But the Blenheim is a sort of such remarkable vigor—so stout in branch and bark and leaf—that it endures all the trials that our climate imposes. Mr. Downing says that Canadian correspondents write to him that it is most successful there, while here in the Middle States and through the West, and as far south as Virginia at least, it is constantly reported as admirably fine and fruitful.

All this relates to the true sort, which in England brings eleven shillings a bushel when common apples only bring four. Yet it is most vigorous and productive there, as well as here. There it keeps all winter; here it ripens in the autumn and keeps till January.

The description of the Blenheim Pippin given in Downing's Fruits and Fruit Trees was taken from some spurious source. The true sort is partially described as the Blooming Orange in the large edition of 1869. Mr. Downing has since identified this as the true Blenheim.

It is a high-class example of the type of fine English dessert apples, having the wide-open, eye, the richly-stained—almost mahogany color, and the crisp, pungent flesh, which mark their table-apple. When in perfection, towards holiday time, it has an aroma or bouquet which reminds one of the subtle flavor which connoiseurs in wine will smack lips and tongue over, while they seem to concentrate all powers of sensation in the palate in order to secure and enjoy it.

This sort is a great bearer, but not an early one. Like other strong growers, it first makes a good deal of wood. But when it sets into bearing it is profuse and unfailing—wonderfully so, considering the size, weight and perfection of the fruit. It is now pretty widely distributed through the States.

EDITORIAL NOTES.

Bananas in California.—A correspondent of the London *Gardener's Chronicle* says the Banana has been found very profitable in the vicinity of Santa Barbara, and that acres of them will soon be growing there. It takes four hundred plants to the acre.

Vicomtesse Hericart de Thury.—With all the new introductions this continues the most popular strawberry in England.

Raspberry Culture.—F. M., Cecil Co., Md., writes:—"I send you the enclosed extract from an 'authority.' It does not agree with my ideas; what do you say?" "They should never be set in an orchard beneath the trees. An open, sunny situation ought always to be selected. The ground, which should be deep and rich, will be highly benefited by a mulching of long, strawy manure, both summer and winter; and cleanliness and order must prevail in all their surroundings. Raspberries should not be planted deep. Many a plantation has been lost from this error, notwithstanding the soil has been in good condition and the plants entirely sound and healthy. Give the crown at the apex of the roots a very slight covering with soil."

[It may be very good advice for a high northern region, but for yours and other central States, we agree with you, it is very bad advice.—Ed. G. M.]

A Large Bunch of Grapes.—The Dublin *Gardener's Record* says:—"At Latimers, Chesham, the seat of Lord Chesham, Mr. A. Donaldson, the gardener, has produced, according to the *Buckinghamshire Advertiser*, a monster bunch of Trebbiano Grapes, measuring two feet across the top, and about the same measurement from stalk to point. It is calculated to weigh twenty-four pounds." Such a statement as this is worth verifying.

Fall Strawberries.—A strawberry grower in England is making a fortune by taking plants that have been used for winter forcing, and encouraging them to go on and bear again. They flower freely in the Fall, and bear full and very profitable crops. There is the germ of a good idea here, well worth looking after by our own market men.

The Ben Davis Apple.—This variety, as we judged by the frequency of its appearance at the Centennial, holds its own as a popular western apple.

Rihston Pippin Apple.—We have been under the impression that this popular English apple was not adapted to America, and believed it was now seldom grown, and yet we noticed it in no less than fifteen different exhibits from the northwest, and from Canada, and in splendid condition. Its frequent and superior appearance in this way must have bothered those who believe in old varieties wearing out.

The Alexander Apple.—This large, very showy, and yet comparatively poor apple, appeared in many collections at the Centennial. It goes to show that size and appearance after all go a good way in the selection of varieties, in spite of the warning to "plant only the best."

Three Perfect Crops of Pears in One Season.—A California paper tells us that, "The most astonishing prolificness of fruit ever witnessed in this or any other climate, came to our notice this morning. It is that of a pear tree in the yard of Hon. Mr. Suverkrup, of this place, just in front of the Court House. This tree is about twelve years in bearing. It has as a very common thing, put in its second fully matured crop of delicious pears every season, and has done so this year, and now on this 14th day of October has on it the third crop, fully one-third grown; the season continuing favorable will doubtless mature the fruit hanging in clusters upon the tree. We have eaten from the first and second crops and we shall apply for a share of the third. This wonderful production will of course be denounced as false and incredulous, but we vouch for the truth of it, and doubters can have all their scruples removed by examining for themselves. Whether it is peculiar to the tree or climate or both is a question to be determined. Most likely both. We do not believe the like could be produced in the northern or eastern States, or anywhere else."

We saw this year in Germantown two full crops on a *Smoke-house apple*, both ripening perfectly. The last lot from flowers that opened in June were not as large as those from the early ones, but still they were perfectly ripened. California must look out or her fame will go down.

Hale's Early Peach.—An Editorial note in the *Country Gentleman* says:—"We have adopted the practice of allowing the trees of this peach to grow in grass, a cultivated strip at one side, at a distance of seven feet, imparting more vigor to the trees than they would have if the roots were wholly in grass, and giving shoots about ten inches long. This practice of seeding to grass, which has proved more or less successful with other cultivators, together with the precaution of gathering the peaches when well colored, and before soft, has saved them generally from the rot (the season being unusually wet), only a few partly decayed specimens being found, and these, so far as examined always decayed at a curculio mark."

We refer to the matter to caution people who grow peaches in grass not to neglect them, or they will soon get yellow and bear small and poor fruit. The trees should be top dressed with some sort of enriching material at least each alternate year. It must be remembered that the only merit of growing trees in grass, is that such trees are healthier because the feeding fibres are kept nearer the surface. The Hale's Early rots when by "clean surface culture" the fibres are injured—but keeps sound where among the grass the little roots are let alone. But they must have food; indeed it is the more necessary to look to this when in grass, because grass and trees are both looking for something to eat.

Hale's Early Peach in England.—It is a remarkable fact that while we took in the Early Beatrice, Early Louise, and such other kinds, to replace the Early Hale, in England they are taking up with Hale's Early to supplant the other two. Correspondents of the *Gardener's Chronicle* say, that in England Hale's Early is two weeks ripe before Early Louise. This is forcing-house experience; perhaps, in the open ground they behave different.

Peach Plum in Oregon.—We notice in a circular of Mr. Walling that he exhibited the Peach Plum at the Centennial, and that they were so large and fine that "the committee claimed the right to alter the name to the G. W. Walling, because they were so superior in size and quality to the same variety from other States."

We do not know who may be meant by "the committee." The writer of this was secretary to the Group of Judges, and he is sure no such a joke was perpetrated by him in his weekly reports, and this is all the "Committee" is officially responsible for. There are fruit synonyms enough now, without adding G. W. Walling to the Peach Plum.

The Phylloxera in California.—It was once an argument against the idea of injury by Phylloxera, why the foreign grape resisted Phylloxera

in California, and the answer was, because the insect was not there. The Pacific *Rural Press* says it has appeared there at last.

THE CHAMPION WIND ENGINE.—To have water, when nature does not favor us, is one of the roads to fortune. It is surprising that more people do not guard themselves from injury by contrivances to secure water, when nature is in a wayward mood. We are thinking of this just now as we read the circular of the "Champion" engine for pumping water by wind power. It seems by the description to have many good points.

PRUNING FOR WOOD AND PRUNING FOR FRUIT. There is a good deal of art in being a good fruit grower; and we give the following extract from Karl Koch's lectures to illustrate it. We have adopted as the heading of our paragraph a well-known expression of Mr. William Saunders, who used to dwell so much on the difference in his earlier writings.

"Nothing is so well suited to give us an insight into the ways and means of the nutrition of the fruit tree, and vegetable nutrition generally, as the practical treatment of the more delicate kinds of fruit trees in pruning. The double task of every individual organic being, animal or vegetable, to take up nourishment, not alone for its own development, but also for the production of fruit to propagate its species, asserts itself as of primary importance in relation to pruning. The fruit gardener distinguishes these processes as the formation of wood and the formation of fruit. He makes it his aim to maintain the equilibrium of these two forces. But this view of the condition of things is neither natural nor right. In our fruit trees—I am speaking now of the North, for even in the South of France they behave quite differently—there is, for reasons which I shall afterwards explain, a preponderating tendency to the formation of wood. Trees in North Germany grow, on an average, four times as fast as those in the warmer, and more particularly those in tropical regions, and consequently produce four times as much wood in the same period. Therefore the fruit gardener in the North has, in respect to this increased production of wood, a more formidable difficulty to encounter than in the South. In his treatment of a fruit tree his endeavor is to prevent it from making more wood than is absolutely necessary to assimilate in its leaves the food required, on the one hand for the immediate growth of new wood—that is to say for just so much new wood as it wants, and on the other hand for the next crop of fruit. From the difference in the growth of trees in diverse climates—taking, for example, the North of Germany and the South of France—it is clear that the treatment of fruit trees in these two regions should not be the same. Whereas the Frenchman prunes for wood, we are often obliged to prune for fruit. Therefore all translations of even the best French treatises on pruning, with a view of carrying into practice here the precepts they contain, do not possess the slightest value for us. Indeed, I would warn our gardeners against following out these directions in the North.

The German fruit grower not only carefully watches growth, even where there is a superabundance of nutritive substances present, so as to limit the production of wood to a certain quantity, but he also knows how to interrupt the growth of the young shoots by shortening them to a given length, thereby diverting the food stored up to the fruit, and increasing its volume. But a good fruit gardener does not stop here; he likewise reduces the number of fruits in order to obtain a larger size and better quality; and by this means he has about the same weight in finer fruit that he would have gathered from the more numerous smaller fruit."

NEW FRUITS.

NEW APPLES.—The list of apples is so long that for years past we have been able to note but few new ones that have any claims to introduction. Unless there is a point of merit not yet reached by some other, it is rather an injury to fruit-culture than a benefit to introduce new kinds. We feel this more than ever since our centennial experience, where nearly everything of all this great multitude came before us in one shape or another, and we shall feel more embarrassed than ever in deciding that a new seedling is worthy of naming and dissemination. We have now three excellent kinds before us from Canada. One is Bradt's Seedling Russett. It is medium sized, and as good to say the least, as any average Russett known, and appears to have good keeping qualities. We made a Christmas offering of it, and it then was in such good trim, that it looked as if it might have been

kept a year longer. Then there is the Swazie Pomme Gris, quite as good as its original, and this is surely saying a good deal. And lastly there is a seedling from the Spitzenburg, rather rounder, a little darker and firmer fleshed than its parent, and *may* prove superior on the whole. This is raised by Mr. Ed. Blogdon, East Flamboro, Canada, but the specimens were kindly sent to us by Mr. John Freed, of Hamilton.

St. Augustine Grape.—At the Centennial Exposition were some bunches of this variety, about which the following appears in the *Semi-tropical*. There is no doubt about its being a native grape, in many respects approaching the old Elsinburg, if the specimens were accurately labeled:

"From Dr. Davis' article on the St. Augustine Grape, Messrs. Bush, Son & Meissner, of Bushberg, Missouri, were led to inquire whether it might not be identical with the Black Spanish, which is now in demand for exportation. We referred the inquiry to Mr. Atwood, of St. Augustine, whose knowledge and experience in grape culture qualify him to determine, and we received the following reply:

"'The St. Augustine and Black Spanish grape are not identical; the former is nearly a month later than the latter and a vastly superior grape; indeed I doubt if there ever was a finer grape grown than the St. Augustine; they are truly bags of wine—the seeds so small and the pulp so melting that it seems almost like a seedless grape; while with the Black Spanish the first thing one notices in eating it is its preponderance of seeds in proportion to its pulp. I doubt if the true origin of either of these grapes is known, only that tradition says the St. Augustine 'was brought from Madeira in old Spanish times.' I have repeatedly thought that I had eaten these grapes in the island of Madeira and still think so, though I dare not trust a very positive expression on this subject, as it was more than twenty-six years since I was there, and then I knew very little comparatively about the quality of the different varieties of what would be called fine grapes. Since then, however, I have propagated a great many varieties of grapes, and to the extent of perhaps ten acres, but among all these and all the grapes produced by others that have come under my observation, *none* have equalled in quality those of the St. Augustine grape.'"

The James Veitch Strawberry.—A Yorkshire correspondent of the *Garden*, Mr. Lovel, Weaverthorpe, says that among forty varieties of strawberries which he grew last year, the largest was James Veitch, eight fruits of which weighed 1 lb. This season it took from seventeen to eighteen to weigh 1 lb., a result partly owing to the cold, frosty weather which we had in May and June; so severe, indeed, was the frost in June, that all the earliest bloom was destroyed. The large fruits gathered in 1875 were Cockscomb-shaped, not those of a globular or conical form, which is the normal shape of this variety. He noticed also in these large strawberries a great tendency to decay if in contact with the damp soil. He has gathered during the past season very fine and large fruit from Dr. Hogg, President, and Sir Joseph Paxton, all first season plants. Many of the finest fruit of these kinds weighed nearly 1 oz. each. He considers these three varieties superior in many respects to James Veitch, especially as regards quantity and quality of fruit.

Stump Apple.—At the Horticultural Meeting held in Rochester, January, 1876, President Barry said that there is an apple known as the Stump Apple, that is attracting much attention—an oblong, brilliantly colored fruit, like the Chenango Strawberry, very attractive, and sells high in market; has been sold as high as $8.00 per barrel the past season. It ripens in October. J. S. Stone, of Charlotte, N. Y., in describing the tree which he visited says: "The fruit hung in ropes, and was uniform in size and apparently free from imperfections. Ten barrels were picked from the tree which was not a large one."

"Olivet" Cherry.—S. P. W., Dansville, N. Y., says: "The 'Olivet' takes a place not occupied up to the present time among the list of early cherries in central New York. Nearly all of the early sorts, that we possess, are sweet, amber, or red varieties with a limited fruiting season. The 'Olivet' Cherry is a large, globular and very shining deep red sort. The flesh is red, with a rose colored juice, tender, rich and vinous, with a sweet sub-acidous flavor. It ripens in the beginning of June and continues till July without losing its quality. It possesses the fertility of the best of the 'Duke' tribe and is perhaps the largest of the class."

QUERIES.

Butter from the Cydonia japonica.—Some nice fruit of the Japan Quince sent to us from Tennessee, we handed to Mr. J. O. Schimmel,

the well-known manufacturer of this and similar articles in Philadelphia, and we have the following about it: "I have made 'Cydonia' into butter, and will forward you a sample. Its quality for jellies, &c., is in my opinion, equal to the bitter orange. For butter I do not think it could be used to advantage over orange or lemon. You will find the seeds inclosed, perhaps they are of some value to you."

Pear Blight.—A New Jersey correspondent says: "What do you think of syringing the pear trees that blight, with carbolic acid or other preparation, and how strong would it do to use it? Would chloride of lime in water injure trees? Did any one ever try salt around the trees, and with what result?"

[Better paint the trees with oil—or wash with lime and sulphur in the winter season.—Ed. G. M.]

Highland Hardy Raspberry.—A. O. W., St. Joseph, Mich., says: "Is the Highland Hardy Raspberry one of the old varieties re-named, or is it something new? It is being largely disseminated as a new kind, and if it is not, it should be known."

[The Raspberry has been extensively and very cheaply advertised; beyond these advertisements we know nothing of it.—Ed. G. M.]

FORESTRY.

COMMUNICATIONS.

LIGNEOUS MARVELS,

Or, The Three Big Trees of Upper Sandusky.

BY WM. T. HARDING, COLUMBUS, O.

There are no objects more generally useful, beautiful, or interesting, in the physical geography of our country, than the grand indigenous old trees.

"The forest trees . . . .
So mossy, vast, yet green in their old age,"

will never fail to attract the attention of every intelligent being, who finds a companionship in Nature.

In the neighborhood of Upper Sandusky, Wyandot County, Ohio, where I was engaged in laying out a cemetery, during the Spring and Summer of '76; and while in search of the beautiful, under the guidance of a genial friend, I was induced to follow a romantic pathway, which pleasantly led us from the bluff above, down easy verdant slopes, to the river side, where the silvery Sandusky gently glides on. And oh! what a striking picture was there. Prolific scenes of matchless beauty, spread around us. The native roses and hawthorns were profusely scattering their odorous blossoms over the sunny landscape, so beautifully varied with all the charms which pretty wild flowers, and irregular low spreading bushes, springing through luxuriant grass, could give.

Even the sleek looking cattle seemed as happy as any well-favored kine could possibly be, as they quietly cropped the rich verdure around. All nature seemed to equally share in the pastoral scene, so picturesquely unique.

The poetic limning of Burns was only wanting to invest it with such sylvan charms as "Ye banks and braes o' bonny Doon." But, from a lack of fitting language to fully describe its many pleasant features, I am constrained to stop; and in lieu, say something about the big button-wood, near by, and in whose shadow I musingly sat.

The subject under notice is botanically known as Platanus occidentalis—the western plane-tree—or more generally called the button-wood—and often, *erroneously*, sycamore. That it is no ordinary specimen, the reader will admit, when its gigantic dimensions are known. Its altitude is about one hundred and sixty feet.

At four feet from the ground the colossal trunk measures forty-eight feet in circumference. At the height of fifteen feet from the base, the massive trunk ramifies into eight large column-like shafts, the round measurement of which, is

from ten to fifteen feet, and above which the heavy branches spread over an area of seven hundred feet.

I have seen in my travels many strange trees, historical, beautiful, magnificent, venerable, gigantic, ancient, and remarkable, to which I have frequently alluded in the *Monthly*. Much larger specimens have often amazed me in other lands, but, nowhere else in this country have I ever met with such a ligneous immensity as this.

I will quote from Loudon, on Recorded Trees, and than whom, there is no better authority.

"On a little island in the Ohio, fifteen miles from the mouth of the Muskingum, the elder Michaux measured a button-wood tree which at five feet from the ground was forty feet in circumference. Twenty years before, General Washington had measured the same tree and found it to be nearly the same size. In 1802, the younger Michaux found on the right bank of the same river, (the Ohio,) about thirty-six miles from Marietta, a plane-tree, the base of which was swollen in an extraordinary manner; at four feet from the ground, it measured forty-seven feet in circumference."

Other writers give instances of large planes, but much less in size than the above mentioned tree. So I think I am safe in pronouncing the arboreal Upper Sanduskian, the biggest tree of its kind on record.

Not far from the huge Platanus, stands an unusually fine Robinia pseud-acacia, or locust-tree. This exceedingly handsome specimen, (which is not the general character of them when aged,) is a hale, green tree, of about one hundred and twenty-five feet high. At four feet from the base the girth of the bole measures sixteen feet; and up to thirty feet above, where it first branches off, maintains nearly the same calibre as below. A more portly, vigorous, or stately locust-tree is seldom, if ever, seen. The rich, deep alluvium in which they are growing, has evidently nourished them well; for in truth, they are "burly and big."

As I looked at the noble old trees, thinking of the past, a past, so fraught with the history of the aboriginal race, in the days when the once powerful nation of Wyandot Indians, occupied the primeval forests around; I thought on how much the affairs of life have changed since then. It is not improbable in the events which then occurred, that the great Chief Farhee, (the good Indian,) better known as the "Crane," may many times have met in solemn council, or noisy pow-wow, with his swarthy braves, beneath the shady boughs of the ancient plane.

It was while in the immediate neighborhood of Upper Sandusky, in the year of grace, 1816, after seventy-four summers and winters had come and gone, since the face of the forest child was first warmed by the western sun, when the "Great Spirit" called the old Sachem away.

If the long suffering reader is not already wearied with the tiresome tale of a tree, I will venture to tax his patience a little longer, while describing a noted "Indian apple tree." This famous, and in many respects remarkable tree, grows on the opposite side of the river, and about a mile from where stands the locust and plane. Inasmuch as the circumference of this "sour apple tree" is considerably more than my tape-line ever girdled before,namely, at three feet from the ground, twelve feet six inches; I trust I may be pardoned for having mentioned it. At five feet above the ground, the trunk branches off into a number of good sized boughs, and which attain to a height of some sixty feet above, and spread over a circle of seventy feet. Undoubtedly, the tree is a very old one, and has been at some past time, *at least*, fourteen feet in circumference. A part of it having been riven off, branch and stem, some years ago.

The late Mr. Downing thus describes three enormous sized apple trees: "Among others, we recollect two in the grounds of Mr. Hall, of Raynham, Rhode Island, which ten years ago, were 130 years old; the trunk of one of these trees then measured at one foot from the ground thirteen feet two inches, and the other, twelve feet two inches. The trees bore that season thirty or forty bushels; but in the year 1780, they together bore one hundred and one bushels of apples. In Duxbury, Plymouth County, Mass., is a tree which in its girth measures twelve feet five inches, and which has yielded in a single season one hundred and twenty-one and a half bushels.

Unquestionably, they were three good old trees, and were no doubt as much valued by the owners, as the aforementioned trees are prized by the cultivated and intelligent citizens of Upper Sandusky.

VALUE OF A TREE.

BY W.

Bagot's Park, Staffordshire, is very large and contains some grand oaks, some of which have

been noted trees for 600 years and are supposed to be 1,000 years old. The climate of England favors slow, firm growth, and trees are seldom injured there by climatic influences. The King Oak was valued at 293 pounds; (a Mr. Bullock offered 200 pounds for the first length;) and the Squitch Oak, the largest tree in the park, but not quite sound, was valued at 240 pounds 12 shillings, (about $1,200). These trees are still increasing in circumference. The Squitch has increased 17 inches in 50 years.

EDITORIAL NOTES.

Tree planting in Canada.—We are glad to note the encouragement to individual effort, which we see given in every direction. The *Toronto Globe* says:—"The importance of replacing by fresh efforts extinct forests, or those which are in process of gradual removal, is receiving official consideration. The Act of the Dominion parliament passed last session, grants an additional quarter section, on payment of a trifling fee, to every settler on Dominion lands who plants thirty-two acres in successive annual instalments."

Address of Burnet Landreth.—The admirable address of Mr. Burnet Landreth, before the American Foresty Association, has been issued in pamphlet form.

Pinus Lambertiana.—The Sugar Pine of California is said to be equal to the Yellow Pine of the East for flooring and similar purposes.

The Pitch Pine.—Common names are so mixed that we hardly know what the person is talking about who uses them. In pines, for instance, we never know what any writer means when he says "Yellow Pine." An English writer says that in America "vessels have been made for a considerable time past, wholly of Pitch Pine." We understand by Pitch Pine, *Pinus rigida*, and would be glad to know whether vessels are made wholly of it, and if so where?

Torreya taxifolia as Durable Timber.—The *Semi-Tropical* tells us that, "Judge P. W. White, of Quincy, Florida, is having a fence built, the posts of which are of the celebrated Torreya taxifolia trees, and the rest of cypress. Some of the posts were gotten out of trees blown down in the terrible storm of 1833, and are perfectly sound after having lain on the ground 43 years. The wood while green is very heavy, but when perfectly dry is very light. It has a very fine grain, and is a little more of a dark yellow color than the white pine."

Commissioner of Forestry.—We have always opposed the effort made in some societies, and in some quarters, to engage the government in the Forestry business, because we know, as our government is constituted, the less it interferes in what people can do themselves, the better it is for the people. There is really nothing for a national forester to do that we know of, but to sit in Washington and address circular letters to A, B, C, and D, asking them to give the government their experience for nothing, and their time in telling it at the same price; or in asking newspapers to advertise for the government free of all cost, that the government has now a forester, and the people can now send their contributions to him instead of to the newspapers. This, we believe, is all it can do—for it is well-known that it would not appoint any practical person, or to undertake to teach practical forestry from the seed to the saw log. We have always felt, in short, that a "Bureau of Forestry" simply meant comfortable quarters at Washington, with comfortable clerks at comfortable salaries; and with calls on the newspapers or individuals to do all the practical work.

It seems, however that other people differ from us, and the efforts of these fellow-citizens have already been so far successful as to have the office started. We do not know what the official title is, but the salary is two thousand dollars a year, and Dr. Franklin Hough is appointed to fill the place. We can only say that we oppose the office on principle, believing it is money thrown away, and increasing unnecessarily the deplorable army of office-holders, but if it is to be as it is, no better person than Dr. Hough could have been found to fill the place.

Large Oak Trees.—We should like to know what is the largest American oak, Quercus alba, known. So far as the writer's experience goes, he has seen the largest in the woods of Southern Ohio, but has no exact figures. We can, perhaps, hardly hope to equal the following which we find in an English paper, but should like to know how near we approach it. "The most magnificent oak ever known to have grown in England was that dug out of Hatfield bog; it was 120 feet in length, 12 feet in diameter at the base, 10 in the

middle, and 5 at the smaller end, where broken off; so that the butt for 60 feet squared 7 feet of timber, and 4 for its entire length. £20 were offered for this tree.

Forests in Europe.—If there is any change in the climate of Europe, it can hardly be from the disappearance of forests. Recent statistics say that about twenty per cent. of the whole area of Europe is covered with forest, aggregating 500,000,000 acres. We do not, however, regard these floating figures as always reliable, but give them as they come to us. There is a great deal of loose calculation going on in the world.

Alder and Sweet Fern in Tanning.—When forestry becomes a business, all the minor products will be incidents of profit. The Alnus and Comptonia seem to have good points about them.

The *Ellsworth American* says that Captain Eaton made another shipment of two hundred barrels of sweet fern extract to the Boston leather market and with it his first consignment of extract of alder. This alder extract, like sweet fern extract, is new to the leather trade of this country. The tanning properties of these new agents have been thoroughly tested by practical tanners of Ellsworth, and found to be equal to, if not superior to the best tannin material in use in this country. Calf skins tanned with both the fern and the alder are as mellow and firm as the best tanned French calf skins, and much more beautiful in color.

The Profits of Oak Timber.—We give the following as we find it in a foreign paper, because it shows the incidental profits that may be made in growing oak. We doubt, however, whether for paper pulp anything will be found so profitable as poplar. Though nothing can be made from the bark, it grows into profit so soon :—

"Dr. Mitscherlich, of Darmstadt, has devised a method of making paper stock (cellulose) from wood by a chemical process, which differs somewhat from those previously in use. The chief peculiarity of this process, which is in use already in Prussia and Saxony, says the *Hesse Gewerbeblatt*, consists in this, that the incrusting substance of the wood is not destroyed, but only separated from the cellulose, and eventually rendered soluble.

"In this process, it is not necessary to cut the wood up very fine, as in the Sinclair process, but only to split it up like ordinary firewood for a parlor stove. A chemically prepared solution of lime is boiled for six hours with the wood under a pressure of three atmospheres. After the boiling, a portion of the incrusting material is found dissolved in the liquor, and part of it in the pores of the wood, from which it is extracted by a suitable squeezing apparatus.

"If it is desired to make a very valuable paper stock, which shall be as white as possible without bleaching, they only employ white wood as free from rosin as possible, like poplar, linden, etc. These kinds of wood are not decolorized any farther in this process, and the albuminoid and gummy substances are mostly dissolved. The success of this process depends less on the pressure during boiling than on the temperature, which must not exceed 248° Fah.

"The use of oak wood for paper stock offers one advantage, namely, that the tannin contained in it is obtained as a by-product, and the solution thus obtained can be very profitably employed for tanning, as experiments in this direction have abundantly proved. The solution which runs off from the wood, or expressed from it, in this new process, is already so concentrated that evaporation seems superfluous, and is only undertaken when a very concentrated solution of tannic acid is required either for transportation or for keeping. The other chemicals contained in the lye are in no way a hindrance to the tanning process, but rather aid it. Experiments show that hides prepared in the usual manner, when simply laid in this liquor, were perfectly tanned in ten days."

QUERIES.

Eucalyptus globulus in Vermont.—H. N. R., Brandon, Vermont, writes :—"A friend in Italy has secured for me a few hundred plants of this wonderful tree, and of which I propose to make a plantation on a piece of land I have. I am quite elated at the prospect of being the first in this part of the world to introduce it—at least I suppose I am, for I can learn of no one who has planted it hereabouts; though in the papers I see they have it growing in California. As I wish it to do well I wish you to assist me with advice, as I am informed you are liberal with questioners through the *Gardener's Monthly*. If you are kind enough to reply to my questions please send me a copy of the paper containing your

answer. What I want to know is,—when I saw it in Rome it was growing in swampy ground; my land is rather dry. It is protected on the northeast by a high ridge of hills. I was told by an Italian gardener it might want a little of such protection in the United States. Is it necessary to bring some mud to put in the holes in such a situation as this? I am so anxious to be the first to have a plantation of these wonderful trees in this part of the world, that I would not mind the expense of a few barrels of dirt by railroad to add to the natural soil, if necessary to success. Should the trees be set deep? How about pruning the roots?"

[We hardly knew what to do with this letter. We are "liberal" on questions when it concerns our regular readers, which it seems this gentleman is not. We may say that in the soil and climate of Vermont he need not get any "mud" or other soil, and it does not matter how deep they are set. The location, also, is good enough, and when the "forest" grows up, he will no doubt get thousands from all parts of the world to come to look at it, and he himself will go down to posterity as one of the greatest benefactors of his race.

The conditions are all right, but instead of bringing mud, we should prefer to lay in a big stock of cord-wood to keep up a good fire all around the plantation during the winter season. We think this is essential. But why does our correspondent want to be so distinguished in the matter of *Eucalyptus?* Why not try the cocoa nut? They grow fast, and then there is the fruit too, which the Eucalyptus has not; fruit with milk in it, which will illustrate his human kindness much better than he can ever hope from the Eucalyptus tree.—Ed. G. M.]

NATURAL HISTORY AND SCIENCE.

PRAIRIE FLOWERS.

BY REV. L. J. TEMPLIN, HUTCHINSON, KAN.

(*Opuntia Rafinesqii.*)

In traveling over the plains about here, it is not unusual to meet with large specimens of this thorny cactus. Some places considerable space, even at times several acres, will be almost completely covered with them, branching and spreading over the ground in all directions. They are propagated both by seeds and by the broad, flattened stems coming in contact with the soil and taking root. And, though I have not tried it, I believe that cuttings of the stems will take root and grow if planted in the soil. It is very much inclined to branch, and it is not unusual to see a bunch, or a cluster of bunches, four feet in diameter, all of which have proceeded from the same root. The stems are from three and one-half to five inches in length, and from two to three in width, and from one-fourth to one-third inch in thickness. The stems are dotted over with tufts of fine, sharp bristles that are ready to let go their hold on the plant and adhere to the hand on the slightest touch. From the base of these tufts issue a number of sharp, slender spines, from one-half to one inch in length. The number of these varies from three to five or more; the central one is usually the longest. The general color of the stem is rather a dark green.

The flower-buds grow on the edge of the stems, and appear to be distributed without regard to any law of regularity. The flower expands from three to four inches, and has a very silky texture and appearance. The color is a beautiful pinkish yellow, running into a dark, velvety maroon, or purple, toward the base of the petals. They bloom quite profusely; a plant that I transplanted from the town commons to my yard last April, though only about eighteen inches across, produced some forty of these showy flowers. They remain open two or three days, when they wilt and fall away. The flower

stem, which is about an inch in length, becomes the seed pod or berry. This generally attains a length of about two inches and, when full grown, is three-quarters of an inch in diameter, at the largest place. It is pyriform in shape, the small end being at the base. These, when ripe, are of a dark purple color, and are filled with small bony seeds. The contents of one pod of which, I enclose to your address.

One of the most remarkable things that I have observed in connection with this plant is its change of habit on the approach of cold weather. During the summer the joints of the stems generally occupy a vertical position, but on the appearance of cold weather, all of them that are not hindered by some obstruction, assume a horizontal position, each apparently striving to get as near to the earth as possible. Another peculiar change that takes place in the stems is in their form. During the warm season they are smooth and free from wrinkles on the surface; but when the cold season begins, they shrink up from one-fourth to one-half their normal size, becoming very wrinkly or ridgy. This contraction takes place almost, if not entirely, in the length of the joint, often reducing it to less than the width.

This change is probably the result of the larger portion of the sap withdrawing from the plant. These changes are probably a provision of nature to enable the plant the more readily, to endure the rigors of winter—a kind of vegetable hybernation. Possibly Mr. Darwin might see in this the prophecy, if not the remote origin, of the hybernating animal. But be that as it may, it is worthy of the attention of the curious.

NEW PLANTS.

Lilium Humboldtianum.—This splendid species is a native of Humboldt County, California. It is quite hardy and produces large golden yellow flowers, which are spotted with purple.—*William Bull.* See cut, page 26.

EDITORIAL NOTES.

Pritchardia filifera.—Just as we go to press, a botanical friend calls our attention to the fact that the Californian Palm, which Mr. Watson referred to in our pages as Pritchardia *filamentosa*, has rigid teeth, and not filaments on the petiole, and that probably the one we have figured is another and distinct species.

Under the circumstances it is proper to say that the copy given to our engraver consisted of a frond furnished by one of our prominent florists, and a sketch made from the catalogue of J. Linden, of Ghent. The frond was not seen by us, being mailed direct to the office, and the engraving shows that in the outlines Linden was followed. It may therefore still bear the name of Pritchardia filifera of Linden, leaving it more than probable that Pritchardia filamentosa of California, is another thing. It is too late, as we go to press, to find out which kind is the one in the hands of our cultivators.

Since writing the above we have from Mr. John Rock a stereoscope of one growing in Santa Clara street, San Jose, which is fifteen feet high. This has no filaments on the peteoles, and those few on the blades, are simple extensions of the divisions. The leaf stalks are thickly studded with spring teeth. Linden's plant is either not accurately drawn, or it is another thing, and may bear the name of P. filifera, while the true Californian will be P. filamentosa.

Variations in Coniferæ.—How our American coniferæ vary is now well known. It appears that the Norway Spruce varies in the same way, and no doubt other species of the order do the same. The *Gardener's Chronicle* says:—"At a late meeting of the Berlin Botanical Society, Mr. Braun exhibited and described a series of cones of wild forms or states of the Spruce found in Germany. Just below the upper tree limit on the Brocken a dwarf variety, 8 to 10 feet high, grows and bears cones 1½ to 2 inches long, not unlike those of Picea nigra. The longest, on the other hand, in this collection are from 7½ to 8 inches. There is also an equal diversity in the length of the leaves, but this exists in no definite relation to the length of the cones. The seeds vary from about .40 to .58, in the smallest cones, to about .75 of an inch in the largest cones."

Wearing out of Varieties.—That a tree is but an individual, that the grafts and cuttings are but extending the individual, and that an individual must be short-lived, is one of the so-called scientific "theories" which are often built, and then facts looked up to sustain them. For this particular theory facts do not come out very fast. The Golden Pippin apple, the Ribstone Pippin

apple, the Red Dutch Currant, and many other "individuals," still hold their own, though a century is approaching since they were doomed. A correspondent of the *Gardener's Magazine* says:

"Taking a broader view of the subject, it must be patent to those who go about the world with their eyes open, that all those varieties of the apple and pear which, thirty years ago, were said to



LILIUM HUMBOLTIANUM. See page 25.

be nearly worn out, are still to be found as productive as ever they were. At the present moment we have in the fruit-room, samples of Ribstone Pippin apple as fine as one could wish to see; the Golden Pippin apples, from old trees, are still as satisfactory as ever; the old Forge apple is another variety which still holds its own against all comers for productiveness. As these facts are undisputable, I cannot understand what sound arguments in favor of the wearing-out theory can be brought forward."

Absorbtive Power of Clay.—It is now well known that clay has the power, when dry, of absorbing ammonia from the atmosphere. It is the principle of what is known as the earth closet system. There is no longer any question as to where the earth gets its nitrogen. Dr. Joseph Leidy has now made the additional and important discovery that wet clay as well as dry, has absorbent powers. In a verbal communication to the meeting of the Philadelphia Academy of Natural Sciences Oct. 31st, he detailed some dredging experiments made below the gas-works on the Schuylkill river, and found the mud in the bed of the river highly charged with bituminous matter, evidently from the gas-works. As oil floats, of course it became a question how it got to the bottom, and Dr. Leidy says that the oil combines with the clayey particles in the water, and thus both sink together. In this way he thinks many geological problems may be solved. The oils of decomposing plants and animals have no doubt given the bituminous character to the ancient muds and shoals very often in a similar way.

QUERIES.

Horticultural Science. — A correspondent says:—"Will you please note down some of the experiments in Horticulture which you think are most needed, to be tested thoroughly. It will need some thought, but you can print the list; then your time will not be wholly lost."

[A very useful experiment would be the bottling, or in some way burying beneath the surface of the earth, seeds of acorns, nuts, or other seeds, several lots of one kind to be taken up at different periods, so as to know something about the vexed question of the vitality of seeds, and the succession of plants in forests. We want many more experiments on Graft hybrids, by splitting scions, or summer buds; or in uniting tuberous plants on fibrous ones, or the reverse.

Bulbs placed in the ground several inches deep and at once encased in frozen soil, have grown to the surface when the first thaw comes. Just how much they grow when frozen, and their whole course of growth through the frozen ground would be interesting. Kerner says, in the Alps, some Gentians grow and thaw for themselves a house in the ice, and flower therein—it might not be impossible to repeat some such experiments, and the result would teach us much about the internal heat of plants.

Honeyed secretions appear to be given to plants for the purpose of furnishing a nourishing liquid to pollen. The surplus—as there always is a large surplus in all nature does—being freely at the disposal of the insect world. At any rate the pollen tube is only emitted when there is a honeyed secretion on the stigma, and it is said that flowers which do not seed are made to do so by applying nectar artificially. Experiments would be useful—as well as many other experiments in relation to fertilization. Can any one make Amaryllis fulva, seed?

Whether the same amount of heat is given out to a greenhouse from a ton of coal, when heated by hot water, as when heated directly from a flue—and if not, how much is lost?

These are some of the problems that occur to us, as we write. There are many more which might come from reflection, which correspondents might suggest and which we should be glad to note in these columns.—Ed. G. M.]

Tree Growth.—M. H. D., Detroit, Mich., says: "In an argument with a friend to-day, we agreed to leave the following question to you for consideration: 'Do fruit or forest trees grow after the leaves drop in the Fall, or before the sap rises in the Spring?' My friend says they do, I say they do not."

[Practically the answer is in the negative. No one would be able to perceive the slightest difference in girth, at any time between the periods named. Yet there may be growth of some character at such times. Gardeners know that a "callus," a cell growth, forms on the ends of cuttings, and often roots of a considerable length, before any leaves appear; and after the leaves fall, fibres of trees grow, many believe all through winter, and to some extent even when encased in frost. In the Spring, when the buds are pushing, there is often considerable growth before the

leaves are formed. These considerations, however, were probably not part of the argument, and we should say your friend is wrong.—Ed. G. M.]

LITERATURE, TRAVELS & PERSONAL NOTES.

COMMUNICATIONS.

HORTENSIA OR HORTENSIS.

The following note explains itself:

My Dear Mr. Meehan.—Some weeks ago, in a hurried note, I called your attention to the fact that you had inadvertently called the common garden Hydrangea, H. hortensis, a very common error, and one that I was sorry to see in the *Gardener's Monthly*. Knowing it to be named H. Hortensia in honor of some French Madame Hortense, I wrote it "Queen Hortense," without stopping to consult the authorties, as I should have done had I supposed that the note would be printed. I was wrong as to the particular Hortense, but right as to the point I wished to make—that Hortensia is the proper specific name of the plant, and that Hortensis is wrong.

The *Rural New Yorker* of Nov. 18th takes up the matter, and thinks that your critic (meaning the subscriber) "tumbles into a pit of his own digging." I will take the measure of that pit presently, but first let us hear our friend of the "Rural," who, after giving in substance what I said in my note, adds, "all of which Mr. Meehan publishes with thanks to the critic, never so much as hinting that Hortensis is from *Hortus*, a garden; hence the common name of the species, notwithstanding the very Frenchy story about Queen Hortense." In my note I returned the remark, "But, then, we can't all be perfect"—but at the time I did not think of the "Rural," although I illustrated its truth in my own case by mistaking one French dame for another. "The Rural" reads us the law with much positiveness, and it may be worth while to see how the authorities agree with him. If our friend will refer to any French work on gardening, he will find that the common name for the Hydrangea is Hortensia, and the same name is also in common use among the Germans. If he will refer to any botanical work of acknowledged authority, as De Candolle's for Europe, and Gray's for America, he will find the botanical name of the plant given as Hydrangea Hortensia. The reason for giving this name is told by several authors, but the story is nowhere more concisely related than in Loudon's *Arboretum et Fruiticetum*, vol. 2, p. 996. As this account will no doubt interest other readers, while it instructs the "Rural," I will quote it. After giving the names for the plant in Chinese and Japanese, Loudon says: "In Europe it was named by the celebrated Commerson, in honor of Madame Hortense Lapante, wife of his most particular friend, M. Lapante, a watchmaker. Commerson first named it Lapant*ia*, but in order that the compliment to Madame Lapante might be the more direct, he changed the name to that of Hortens*ia*, from her Christian name, Hortense. The plant was afterwards discovered to be a species of Hydrangea, a genus previously established by Gronovius; but the name Hortens*ia* was retained as its specific appellation, and it is still the common name by which the plant is known in French gardens."

I have no doubt that the "Rural" can find some works in which the specific name of this Hydrangea is given as H. hortensis, the writers having, like some others, assumed, without investigation, that the name was from "*Hortus*, a garden."

Any rap over the knuckles that *you* may feel from the "Rural's" criticism, I regard with satisfaction as retribution for publishing my private scribblings.

So far as I am concerned, it is only a case of mistaken identity. If any of that family of Lapante are now living, I owe them an apology for confounding that Hortense with another Hortense, who though a queen was not an altogether lovely one. Lovers of flowers will be glad

to know that Hydrangea Hortensia keeps alive the memory of the wife of a mechanic, rather than that of a royal example of feminine profligacy. T.

EDITORIAL NOTES.

"To All Wanting Homes."—The publisher desires to say, that the advertisement in the last number under this head, came to him from the Advertising Agency of Edwin Alden, 174 Elm Street, Cincinnati, and he never had any reason to doubt that it was a perfectly reliable firm. This statement is made in reply to some correspondents who question very much whether they will get the worth of their money in the way proposed.

Fairmount Park.—Mr. C. H. Miller, Chief of the Horticultural Bureau during the Centennial, and under whose direction the difficult task of combining the wants of exhibitors with good artistic taste was so successfully accomplished, has been appointed consulting Landscape Gardener to the Fairmount Park Commission.

The Royal Oak.—The oak in which King Charles II took refuge from his pursuers after the defeat at Worcester, by Cromwell, is stated by a correspondent of the *Gardener's Chronicle* to be of the stalked variety, *Quercus pedunculata.* The tree is still living, and is about 11 feet in circumference.

Nurseries of Hargis & Sommer.—We call attention to an advertisement of this firm in our present number. We believe this firm to be one of the most successful in the West. Mr. Hargis has been now for about five months sick, and Mr. Sommer not being a nurseryman but in other business in the town, make good reasons for wanting to sell.

S. S. Jackson.—The Cincinnati *Commercial* tells us that—"The golden wedding of S. S. Jackson and wife, on Thursday, November 9th, at the family residence, in Delhi Township, was the occasion of a meeting of many of their friends to congratulate them and to participate in the enjoyment of a happy afternoon, amidst the numerous flowers which, fresh from the greenhouse, ornamented in great variety the dwelling." Mr. Jackson is a Horticulturist of whom we are all proud. If he could see another fifty years in the same way, there is not one of us but would rejoice.

Wild Flowers of America.—Illustrations by I. Sprague; text by Prof. Goodale, Boston. Published by H. O. Houghton & Co. Our botanical friends at Cambridge are to be congratulated on the spirit which prompted them to a work like this; and in undertaking the publication, the firm of the Houghtons deserves every encouragement from the press and the public.

It is the design to illustrate and describe all the more attractive wild plants of America, in quarterly parts, of four plates each, at $5 per part. The form is quarto, which gives the opportunity to have the figures life size.

The present part has for subjects, Aquilegia canadensis, Geranium maculatum, Aster undulatus, and on the fourth plate two Gerardias, G. flava and G. tenuifolia.

The text embraces all the popular history of the plants, including the scientific descriptions in popular language. Considering the admirable manner in which the whole work of the artist, the author, and the publisher is executed, the price is very low.

Vick's Floral Guide for the present month has a chapter illustrative of the terms used in botany to describe the leaves and parts of flowers.

Chicago Botanic Garden.—Prof. Babcock, the director, has issued a catalogue of all the seeds they have on hand to exchange for others. It is a very large list.

Ayer & Son's Manual.—This well known firm of advertising agents, has removed into the beautiful new building of the Philadelphia *Times*, and have issued a large pamphlet with instructions to their patrons, and which gives many useful hints to those who may probably become so.

C. C. Bragdon.—The weekly papers have made most of our readers acquainted with the death of this gentleman, well known of late years as one of the editors of the *Rural New Yorker.* Though his public labors were more of an agricultural than a horticultural character, his influence in horticultural matters was considerable. From the first foundation of the *Gardener's Monthly* he took a warm interest in its success, and to the last was one of its best friends.

Dr. John Skillen Houghton.—Among the deaths of the month we regret to note that of Dr. J. S. Houghton, who died of an apoplectic stroke, on the 11th of December in his 60th year.

Though a graduate of the Medical Department of the University of Pennsylvania, Dr. Houghton was a native of New England, and in early life was connected with journalism, which he subsequently abandoned for the medical profession. He was always fond of Horticulture, especially fruit growing, and his farm at Olney, near Philadelphia, gave abundant evidence of his taste in this direction. He was a philosophic thinker, and was fond of experimenting on new ideas and scientific discoveries in connection with horticulture, with the result very common in such cases, of benefiting others by his experience, much more than himself. The early volumes of the *Gardener's Monthly* are full of his generous writings, freely offering his experience to all, as are the trasactions of the Pennsylvania Fruit-growers Society, and of the American Pomological Society. The Pennsylvania Horticultural Society especially owes him a debt of gratitude for years of unselfish work in connection with its annual exhibitions. His early experience as a journalist enabled him to address himself successfully to the popular heart, and he was generally successful in filling the hall with visitors. His genial good nature never deserted him, and in this feature alone, his presence among his horticultural associates will be missed.

QUERIES.

Carnation Pinks.—M. N. Faribault, Minn., asks:—"I see often advertised 'Carnation Pinks.' What are they? I know Carnations, I think, and I know Pinks, but what are Carnation Pinks?" [We hardly know what the growers mean. In old times there was a distinction between Carnation, Piccotee, and Pink. This was in the days when they were what is known as "Florists' flowers." The names are all so mixed now by the cut-flower cultivators that one hardly knows which is which, and perhaps "Carnation Pinks" means that you can take your choice of a name. Carnation is however the best name.—Ed. G. M.]

Foreign and American Tuberoses.—A Buffalo, N. Y., correspondent writes:—"In the November number, page 348, you allude to Mr. E. S. Rand, in connection with a gross misstatement from the pen of "one of Boston's leading horticulturists" without apparently suspecting that it was made on the authority of Mr. Rand himself. The statement is "that the bulbs (tuberoses) are imported from Italy and France, as our seasons are not long enough to ripen them." Now, in E. S. Rand's "Flowers for the Parlor and Garden," it is said of the Tuberose (which he prints Tube Rose) that "Our dried roots are annually imported from Italy, where they ripen their bulbs in the open air." (p. 199), and again (p. 202), "Our climate is too uncertain to insure a proper ripening of the bulb."

[It may be that when Mr. Rand was preparing the MSS. for his work, it was not as well known as now that American tuberoses were exported to Europe in immense quantity as well as used so largely at home as to be almost the only ones in use. At any rate allowing that the mistake was originally Mr. Rand's, those who have so recently used the statement in Boston, ought to have known better than their teacher by this time.—Ed. G. M.]

Horticultural Societies.

EDITORIAL NOTES.

Pennsylvania Fruit Growers' Society.—The annual meeting of this Society will be held this season at Lancaster, commencing the third Wednesday in January.

The Western New York Horticultural Society.—Most of the winter meetings of the State societies were held in December, but we received no notice of them till after that number went to press. We are glad of having an opportunity of saying that the W. N. Y. Hort. Society will be held at Rochester, beginning with the 27th of January.

AWARDS AT THE CENTENNIAL.--We have not been favored with a list of the awards in the Horticultural Department, but the following of the Pomological Department has been kindly handed to us for publication. We have omitted most names which are in countries where the English language is not spoken, or our magazine has no circulation.

We may observe that the fact that a person has an award for any particular object, is, by the Centennial plan, only a part of the honor. For instance, we note now that an award is made for "Apples," but it is what the judges say of the apples, their peculiar merit or points of excellence—that is the real honor—and these points are named in the certificate which accompanies the medal. It is the certificate, not the medal that tells the story.

It must be gratifying to the members of the Pomological group of jurors to know that their recommendation for awards were adopted by the Centennial Commission, *without a single exception*, nor do we know that any have been added by the supplementary group, appointed to revise the work of the other groups.

In addition to the awards, a very large number of exhibits, though not possessing special excellencies, have yet had complimentary notices in the regular weekly reports, some of which have, and probably all of which will or should be published by the Centennial Commission.

J. H. Ricketts, Newburgh, N. Y., Wine Grapes.
State of Oregon, Collection of Fruit.
Hampton Kelley, Portland, Oregon, Fruit Butter.
J. M. Humphrey, Plymouth, Mich., Apples.
N. and C. Chilson, Battle Creek, Mich., Apples.
W. J. Weeks, Suffolk Co., N. Y., Cranberries.
E. Bradfield, Ada, Mich., Grapes.
A. H. Richards, Pleasant Mills, N. J., Cranberries.
A. A. Olds, Hamilton, Mich., Apples.
B. Hathaway, Mich., Apples.
H. D. Adams, Salesbury, Mich., Apples and Pears.
Lancaster Co. Horticultural and Agricultural Society, Lancaster, Pa., Apples.
Province of Nova Scotia, Collection of Fruit.
E. B. Clark, Medford, Ct., Vegetables and Grains.
S. B. Wakeman, Saugatuck, Conn., Onions.
B. K. Bliss & Son, New York City, Collection of Winter Roots and Vegetables.
B. K. Bliss & Son, New York City, Potatoes.
F. M. Hexamer, Ivy Hill Nurs., N. Y., Potatoes.
L. J. Clute, Fairfield, Iowa, Potatoes.
State of Iowa, Potatoes and Farm Products.
W. M. Winterbotham, Fort Madison, Iowa, Timothy Grass Seed.
Wm. Jordan, Eldon, Davis Co., Iowa, Corn.
D. Landreth & Son, Phila., Pa., Cereals of the Harvest of 1876.
Baron Angelo Pocari, Sicily, Palermo, Peas, Beans and Legumes.
Società d'Acclimatazione di Sicilia, thirty-nine kinds of Oranges and Citrons.
Hort. Dept. State Ag. Col., Lansing, Mich., Potat's.
Dutch Ag. So., Netherlands, Leguminous Seeds.
C. R. Van Der Pool, Neth., Brielle, Green Peas.
August Boileau, New York, Trained Fruit Trees.
P. Van-Nes-Azn, Netherlands, Boskoop, Trained Fruit Trees.
Charles Pohl, Austria, per Albert Kuhn, Wehawken, N. Y., Currants and Gooseberries grafted on Missouri Currant.
C. P. K. Galesloot, Netherlands, Amsterdam, Fruit Trees.
Dr. John A. Warder, President of the Ohio State Horticultural Society, Early Apples.
Iowa State Horticultural Society, Early Apples.
Gibson & Bennett, Woodbury, N.J., Early Apples.
Abm. Barker, Philadelphia, Pa., Pears.
Henry M. Engle, Marietta, Pa., Seedling Peaches.
Dr. N. H. Morange, Florida, Tropical Fruits and Wine.
Fruit Growers' Society of Ontario, Canada, General Collection of Early Berries and Fruits.
Seth Luelling, Milwaukee, Oregon, Cherries.
Kuhn & Co., New York, American Gooseberries.
Joab Teague, Bourbon Co., Kansas, Apples.
Miss Hettie Trimble, West Chester, Pa., Exotic Grapes, under glass.
John S. Collins, Moorestown, N. J., Blackberries and Raspberries.
E. W. Durand, Irvington, N. J., Seedling Strawberries.
Jas. S. Jones, Germantown, Pa., Strawberries.
Edw. J. Steele, Germantown, Pa. Strawberries.
J. H. Withington, S. Amboy, N. J., Strawberries.
J. H. Parnell, West Point, Ga., Early Peaches.
D. Landreth & Sons, Phila., Pa., Roots for Cattle Feeding.
Iowa State Horticultural Society, Apples.
N. Hellings & Bro., Battle Creek, Mich., Apples.
Michigan State Horticultural Society, Apples.
Mich. State Pom. Society, Peaches and Prunes.
Mrs. G. W. Carpenter, Germantown, Pa., Peaches.
Daniel Smeych, Lancaster, Pa., Peaches.
Thos. J. Beans, Moorestown, N. J., Peaches.
Ellwanger & Barry, Rochester, N. Y., Plums.
State of Connecticut, Plums.
Fred. Seitz, Sr., Easton, Pa., Nectarines.
Mass. Hort. Society, Boston Mass., Large Collection of Apples.
J. W. Manning, Reading, Mass., Apples.
Jos. H. Fenno, Revere, Mass., Apples.
S. S. West, Columbia, Conn., Apples.
Z. Hollingsworth, Sandusky, Lee Co., Iowa, Apples.
T. C. Austin, Middletown, Conn., Apples.
Fruit Growers' Asso'n, Ontario, D. W. Beadle, Sec., St. Catherines, additional Apples.
Ohio Horticultural Society, M. B. Bateham, Secretary, Painesville, Ohio, Apples.
Worcester County Horticultural Society, Mass., Apples.
Indiana Horticultural Society, Wm. H. Ragan, Sec'y, Claymont, Indiana, Apples.
Alfred S. Sheller, Lewisburg, Union Co., Pa., Apples.
Samuel Hartwell, Lincoln, Mass., Apples.
Ellwanger & Barry, Rochester, N, Y., Apples.
H. M. Engle & Son, Marietta, Lancaster Co., Pa., Apples.
Chas. Arnold, Ontario, Paris, Apples.
R. S. Willett, Malcom, Iowa, Apples.
E. H. Elkins, Burlington, Iowa, Apples.

Leavenworth Co., Horticultural Society, Apples.
T. S. Gold, West Cornwall, Conn., Apples.
P. M. Augur, Middlefield, Conn., Apples.
James Dougall, Ontario, Windsor, Apples.
Polk Co., Iowa (collected by Jas. Smith), Des Moines, Iowa, Apples.
John Cummings, Woburn, Mass., Apples.
Benj. G. Smith, Cambridge, Mass., Apples.
Nebraska State Horticultural Society, D. H. Wheeler, Sec'y, Plattsmouth, Neb., Apples.
David Williams, East Hartford, Conn., Apples.
B. H. Atwater, Berlin, Conn., Apples.
J. W. Humphrey, Plymouth, Wayne Co., Mich., Apples.
State of Iowa, Apples.
Kansas State Board of Centennial Managers, Topeka, Kansas, Apples.
Wisconsin State Horticultural Society, Wisconsin, Apples.
W. W. Gearheart, Burlington, Iowa, Apples.
Minnesota Hort. Society, Minnesota, Apples.
David Leonard, Burlington, Iowa, Apples.
State of Connecticut, Apples.
Thos. J. Beans, Moorestown, N. J., Cantaloupe Melons.
Robert S. Thompson, Jamaica, through the British Commission, Tropical Fruits.
Seth Luelling, Milwaukee, Oregon, Pears.
H. Lambert, Portland, Oregon, Apples.
Joseph E. Ledlock, Portland, Oregon, Collection of Prunes.
State of Iowa, per Col. G. Brackett, Wax Models of Fruit.
P. Kieffer, Angora, Phila., Pa., Hybrid Pears.
Wm. Gourney, Hamilton, Ont., Salem Grapes.
W. F. Taylor, Hamilton, Ont., Clinton Grapes.
Mayor Pafford, Niagara, Ont., Exotic Grapes.
Thomas H. Parker, Woodstock, Ont., Grapes under Glass.
Chas. Arnold, Ontario, Seedling Grapes.
Donald Smith, per Fruit Growers' Society, Ont., Apples.
Hugh Scott, Jr., London, Ontario, Apples.
James M. Stacy, Masonville, Ontario, London Pippin Apples.
J. Morgan, Jr. Quebec, Collection of Grapes.
J. W. Newman, Lachine, Seedling Apples.
Daniel Smeych, Lancaster, Pa., Apples.
Dr. J. Stayman, Leavenworth, Kan., Pennsylvania Apples.
Natt Atkinson, Asheville, North Carolina, Apples.
Maine Pomological Society, Apples.
The Worcester Co. Ag. Society, Worcester, Mass., Pears.
Charles F. Curtis, Jamaica Plain, Mass., Pears.
Wm. H. Earle, Worcester, Mass., Pears.
Alex. Dickinson, Cambridgeport, Mass., Pears.
Mrs. Geo. A. Chamberlain, Worcester, Mass., Pears.
Amos. Bates, Hingham, Mass., Pears.
Hovey & Co., Cambridge, Mass., Pears.
Benj. G. Smith, Cambridge, Mass , Pears.
D. Smeych, Lancaster, Pa., Pears.
Jos. H. Fenno, Revere, Mass., Pears.
Griffin & Dolan, Cambridgeport, Mass., Pears.
Nebraska Hort. Society, D. H. Wheeler, Sec'y, Plattsmouth, Neb., Pears.
John Given, Keokuk, Iowa, Pears.
L. T. Barney, Keokuk, Iowa., Pears.
G. O. Hilton, Keokuk, Iowa, Pears.
W. T. Smith, Des Moines, Iowa, Pears.
The Indiana Hort. Society, W. H. Ragan, Sec'y, Clayton, Ind., Pears.
Massachusetts Hort. So., Boston, Mass., Pears.
T. S. Gold, West Cornwall, Conn., Pears.
John Saul, Washington, D. C., Pears.
Iowa Hort. Society, Des Moines, Iowa, Pears.
Hon. Marshall P. Wilder, Boston, Mass., Pears.
Fruit Growers' Association of Ontario, Pears.
P. D. Stillman, Hartford, Conn., Pears.
Seth Luelling & Son, Milwaukee, Oregon, Pears.
John Turner, Norwich, Conn., Pears.
O. B. Hadwen, Worcester, Mass., Pears.
Ellwanger & Barry, Rochester, N. Y., Pears.
F. and L. Clapp, Dorchester, Mass., Pears.
E. Anderson, Felton, Del., Pears.
The State of Connecticut, Pears.
G. B. Brackett, Denmark, Iowa, Pears.
Newell Wood, Millbury, Mass., Pears.
Edward W. Lincoln, Worcester, Mass., Pears.
John C. Newton, Worcester, Mass., Pears.
Robert Manning, Salem, Mass., Pears.
Daniel Smeych, Lancaster, Pa., Grapes.
Agricultural Society of Egg Harbor City, N. J., Grapes.
Ellwanger & Barry, Rochester, N. Y., Grapes.
Fruit Growers' Association of Canada (Province of Ontario), Grapes.
I. B. Seely, Vine Valley, N. Y., Grapes.
George W. Campbell, Delaware, Ohio, Grapes.
James H. Ricketts, Newburgh, N. Y., Grapes.
Commissioner of Victoria, Fruit and Fruit Models.
Inspector of Woods and Forests, Philippine Islands, Pomological Products of the Island.
New Jersey State Hort Society, Fruits.
Samuel Streeper, Broad Axe, Pa., Apples.
Samuel W. Noble, Jenkintown, Pa., Apples.
E. N. Wright (Alexander Cox Gardener), Germantown, Pa., Hot-House Grapes.
James Wardrop, Pittsburgh, Pa., Seckel Pears.
Fruit Growers' Society of Ontario, Collection of Fruit.
E. Anderson, Felton, Del., Duchesse d'Angouleme Pears.
Berks County Ag. Society, Pennsylvania, Apples.
Washington Brookman, Reading (Berks Co. Agricultural Society Pa.), White Doyenne or "Butter" Pears.
A. L. Felten, Phila., Collection of Vegetables.
Henry Avery, Burlington, Iowa, Apples.
Morgan Brown, Toutogany, Ohio, Collection of Vegetables.
J. M. Nelson, Indian Run, Pa., Apples.
Redmond & Co., Pensacola, Florida, Figs.
D. L. Hoadley, Lawrence, Kansas, Apples.
H. Acosta Kreskorn, Cincinnati, Ohio, Paper Fruit and Flower Models.
D. Landreth & Sons, Philadelphia, Winter Vegetable Roots.
Dominion of Canada (from the Province of Manitoba), Esculents.
F. S. Cary, Hamilton, Ohio, Apples.
Michigan State Pomological Society, Continuous exhibits of Fruit.

THE

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DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

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FLOWER GARDEN AND PLEASURE GROUND.

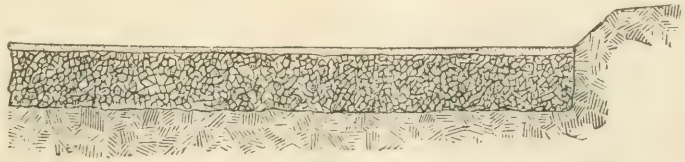
SEASONABLE HINTS.

The Spring season is the road season, and how to make good roads is a matter of first-rate importance. On most places of any size there are too many roads, and then none are well-cared for; good roads are expensive to make and costly to keep in good order, and therefore good judgment should be used in laying out and forming them. If well-made there is not much trouble in keeping them up afterwards.

For good, solid roads, there is nothing yet known that beats the genuine MacAdam. But the specimens of work usually called Macadamizing would not be owned by MacAdam himself. It will serve a useful purpose to give MacAdam's own explanation of his work:

"Every road is to be made of broken stone without mixture of earth, clay, chalk, or any other matter that will imbibe water and be affected with frost; nothing is to be laid on the clean stone on pretence of binding; broken stone will combine by its own angles into a smooth, solid surface, that cannot be affected by vicissitudes of weather, or displaced by the action of wheels, which will pass over it without a jolt, and consequently without injury.

"The size of stones for a road should be that of a hen's egg, or a half a pound weight. It must be in due proportion to the space occupied by a wheel of ordinary dimensions on a smooth level surface: this point of contact will be found to be longitudinally, about an inch; and every piece of stone put into a road which exceeds an inch in any of its dimensions, is mischievous."



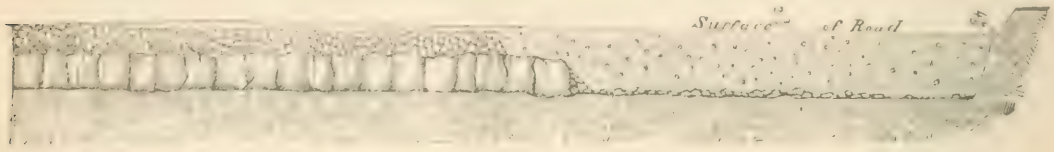
No. 1.—MACADAM ROAD.

A properly made MacAdam road is, however, the most expensive in its first cost, and a sort of compromise is effected by the Telford road, in which large blocks are laid at the bottom, and only broken stone at the surface. This has become very common, and answers pretty well. The MacAdam road is made plain by the preceding illustration.—No. 1.

The Telford road is illustrated by our figure

No. 2. It is formed by heavy blocks at the bottom with broken stones at the top. It is often used simply for the centres of roads, the outsides being gravel, as seen in the cut.

Rubble pavement, as we understand it in Philadelphia, consists of heavy stones set a little edgewise, as in the Telford plan, but coming quite to the surface. It soon wears into ruts, and is extremely difficult to repair when it gets bad, when made of rather soft stone, such as the general gneiss rock of this district; and when of harder stone is extremely rough and unpleasant to travel over. Indeed, the Rubble pavement is merely the Telford in a very incomplete condition. For the cuts with which we have illustrated this sketch we are indebted to the Philadelphia *Polytechnic Review*.



No. 2.—Telford Road.

For small walks around houses and buildings there is nothing much better than slats. These may be made of shingle laths, set crosswise on 3x4 sills. They should be set rather close, so that they do not quite touch one another. Well-made they look very neat, and are cool in summer and dry in winter—good points which roads of stone, gravel, ashes, sand or grass never entirely possess. Of course this is rather expensive where lumber is scarce and dear, but it is the best even in many of these cases.

It may be as well to remind our readers that the time is approaching when all pruning operations be ended as soon as possible, lawns rolled as soon as they can be after the frost leaves them, and while still wet, in order to fill up the inequalities; apply a top-dressing of bone-dust, guano, wood ashes, or whatever other "seedless" manure may be adopted, before the rolling. Arrangements should be made also for Spring planting, by getting good soil hauled near where it may be wanted, for it is a sad loss of time to plant in poor ground, and the holes may even now be dug and the new soil put in. Planting, however, should not be done until the soil is quite dry, so that the earth can be crushed finely in about the roots by the feet, instead of being pressed closer together. Avoid watering the roots at planting. If they appear dry, dip them in a tub of water if small, or sprinkle with a water pot if large, before setting. The soil immediately about the fibres will then adhere to them, and while the water thus benefits, the soil is not rendered a mass of mud. If the trees appear very dry, prune accordingly to the degree of probable injury. If a tree has a large mass of fibrous roots, and these not dry, and the top not very large, no pruning will be necessary. If the roots are injured, prune them too a little. If the injury to the root or top be very great, prune the top severely. No tree or shrub need die of transplanting, no matter how great the injury, unless entirely dead. If there be any life at all a severe pruning will save it. It is often recommended to bury up entirely in soil for a few days, plants that become dried somewhat during removal, which usually does pretty well; but we would prefer to prune away a portion of the branches.

COMMUNICATIONS.

ZELKOVA CRENSTA.

BY HON. ELI K. PRICE, OF FAIRMOUNT PARK COMMISSION, PHILAD'A.

Countless are the ideas exchanged at our International Centennial Exhibition: I give you a small but pleasing instance. Mr. Clarence H. Clark wrote me several weeks since, "A friend of mine of Boston was spending a few days with me, and being much interested in trees, I took him to Bartram's Garden, and to the Woodlands;" and proceeds to say that in the latter he saw trees, which stand north-eastward and north-westward of the Mansion, which were a puzzle to him. That friend was C. S. Sargent, a professor in the Botanical School attached to Harvard College. After his return home, Mr. Sargent solved the puzzle and writes thus to Mr. Clark on the 27th October, 1876: "Perhaps you don't care to know, but I have cleared up the myste-

ries of that strange tree in the Woodlands Cemetery; it is a Zelkova Crensta. The Zelkova is a native of the shore of the Caspian Sea. It seems that William Hamilton, who lived at the beginning of this century, was a great lover and cultivator of trees. Between 1802 and 1805 he had for gardener, Frederick Pursh, one of the fathers of American Botany; and it is not improbable that Pursh got these trees from Europe, as he was a German, and planted them. This would make them all the more interesting, and I hope, if occasion offers that you will mention to the authorities that these trees are of great value and interest, and must be protected and looked after. I don't know of any other specimens anywhere in the United States –certainly there are none in this part of the country."

These trees will be cared for and preserved in the Woodlands. What is more important is, that they should be secured to our country by propagation. If seed should appear next Fall,they will be gathered. In the meantime grafting should be attempted. Mr. Sargent is trying it at Cambridge, on English elms. I invite gardeners to get cuttings and try their success. The Woodlands Company are attempting nothing in that way, the lot holders supplying all trees, etc., needed; but in the Fairmount Park I shall ask Chas. H. Miller and Russell Thayer,officers of the Commission, to endeavor to grow them in the Park Gardens, where we shall aim to make grow every tree that will endure our climate, and will plant with a view both to artistic effect and the study of botany.

It may be of interest to your readers to be reminded that after Bartram's on the Schuylkill, and Marshall's Garden, at Marshallton, four miles west of West Chester,the Woodlands ranked third in time of the important gardens of Pennsylvania. There are now in it many self-sown forest trees, and many exotic and American trees planted by Hamilton. Thirty-five years ago I bought the remains of Duke's Garden, on Township Line, consisting of a fine variety of oaks, besides other trees, and these now afford me a varied supply of fruit for the Park. These and the Park, are intended to be a supply of tree-seeds to nurserymen and others. The Park, in this way, will fulfil its obligations to the spirit of the legacies of Michaux and Cresson, as well as by supplying trees within the terms of their wills.

[This remarkable discovery is, as Mr. Price says, one of the events of the Centennial year. It is many years since the writer of this saw the tree. It was then very large, and, the leaves out of reach, was taken for some garden variety of the English elm. In regard to its name, which was given to it by Spach, we believe the best European botanists regard it as not distinct enough from *Abelicea* which is perhaps the name to be adopted.—Ed. G. M.]

MAGNOLIAS.

BY PHILADELPHIA.

I have from time to time noticed in the *Monthly* and in other magazines, that there seems a difficulty in successfully transplanting magnolias. This arises in many cases from its being done at the wrong time, which is the Fall months. Many trees with fleshy roots, the magnolias especially, should only be transplanted in the Spring, or there is risk of losing them. At this time they succeed just as well as any other tree, and as they have generally a good lot of small roots, large planters are as successful with them then as desired. The most common kinds planted around Philadelphia are the M. tripetala, M. acuminata, and M. macrophylla, of the larger or tree kinds. Of the shrub ones we meet the oftenest M. purpurea, M. Soulangeana, M. conspicua, M. glauca, and M. gracilis. Many grand old specimens of M. tripetala can be found on old residences at West Philadelphia and at Germantown in Philadelphia. It seems to have been the first kind to be largely planted, and the fine specimens of younger trees in more recently laid out places, show it to be as popular to-day as ever. A few years ago there were some beautiful specimens at Laurel Hill Cemetery, and no doubt they are there to-day, in company with the other choice trees to be found in that favored spot. The M. acuminata seems to have been overlooked by the early planters, or it was not so accessible. It grows to a large tree and is unsuited for many places where the M. tripetala may be planted. Yet it makes a most shapely tree, and for shade or ornament, where there is room for it, it should be planted. The M. macrophylla is still more rare, though here and there a large tree of it is met with. It, like the last named, grows to a good size, and with its very large leaves is very ornamental. There are a few other large growing Magnolias, but I am writing only of those most common here as old specimens. The M. conspicua and M. Soulangeana take a place between the tree and the shrub

sorts, growing to twelve feet or more. The specimens observed seem mostly grown in shrub form, and when thus grown are more attractive. It gladdens one in Spring to see them clothed with their white flowers, before even their bright green leaves have fairly budded out. The M. purpurea is quite common to Philadelphia gardens; the M. gracilis and M. glauca not so much so, but the last named is rapidly becoming better known. This one when to its full size is really a small tree, but as it commences to flower when but three feet high, it is usually spoken of as a shrub. It must not be forgotten that the flowers of the magnolias are succeeded by cones of fruit which turn in the Fall to a beautiful rosy pink color, making them conspicuous and pleasing objects on a lawn; and indeed this is thought by some to be a greater attraction than the flowers.

RHODODENDRONS.

BY E. MANNING, HARRISBURGH, FRANKLIN CO., O.

In the September number of your valuable paper I see three Rhododendron articles, one from C. M. Hovey, one from J. A. Nelson and one from our good friend S. B. Parsons. In Mr. Hovey's article, speaking of a writer in *Appleton's Journal* who had stated that in the Northern United States the R. maximum would alone endure the winter, he says, "If the writer had seen or heard of Mr. Hunnewell's fine collection at Wellesley he must have known the Catawbiense endures our winters as well as the maximum. Such authority is of course not of any importance to intelligent cultivators, but to those unacquainted with the plants, it helps to retard their introduction into our grounds."

Here Mr. Hovey intimates that by intelligence it is practicable to grow the Rhododendron anywhere.

Mr. Editor, we hear you in the same say, ignorant Rhododendron culture is a costly thing in America, but intelligently pursued nothing is more delightful.

Now, Mr. Editor, I shall certainly take exceptions to your remarks and to Mr. Hovey's. I have tried twice to grow them and have as often failed. My first attempt was with a moderate preparation of the soil. I got my plants from the old firm of Parsons & Co. They had good balls of roots and were in fine order. They bloomed well the first year, and made good growth. The second season, same bloom, but less growth. The third season no growth or bloom, and the fourth season all gave up the ghost. All were heavily mulched with leaves all the year round. At this stage of affairs I saw several articles on Rhododendron culture in the *Monthly* and in the *Horticulturist*. I sent again to the Parsons' and got eight more splendid plants; I planted some in one bed after preparing for them by digging holes three feet deep, and as many wide, filling up with the best leaf mould mixed with decayed sod, with some sand and pine brush cut up short. I went by the directions of the *Gardener's Monthly* and the Messrs. Parsons. I mulched heavily with leaves. One plant I planted on the east side of my house, where it had the full sun till one o'clock. All grew and bloomed, and were satisfactory the first season, growing one foot in length. The second season less growth and less bloom. Some died at the end of four years. Lee's dark purple lived the longest, lasting seven years. When all were dead I found on pulling them up that the plants had not made any roots, or scarcely any, having only the balls that came with them. I now distinctly recollect that Mr. Sargent, of Wodenethe, once said that if lime or chalk entered into the composition of the soil, it was most repulsive to the Rhododendron which my experience fully demonstrates. Here let me say my soil is a strong limestone; dig where you will, you will find it at one foot down, or less, and down to six feet. As my bed was on the side of a hill, some fifteen feet below the top, on the north side, I could easily see how failure came. In wet times the bed would become saturated with lime water from the hill above.

Nor does Kalmia latifolia or Belgian Azalea thrive any better here. If you or Mr. Hovey can show me a bed of Rhododendrons growing thriftily for two years on a limestone soil, you can then talk about intelligent culture. In all laurel thickets that I have seen, the soil is mostly sandstone. The only way to grow these plants here, is to bring the soil from where they grow, and elevate the beds.

Reluctantly I must part with the Rhododendron here. I shall have to be content to substitute for them the different varieties of Tree Box, which does well here if not planted on too low ground. The Mahonia japonica and M. Bealii, Retinosporas, Cephalotaxus Fortunii, and Magnolia glauca and its variety longifolia do well here. Mahonia aquifolia is a wretched-looking thing with me, worse than any deciduous shrub

in the Winter or Spring. I have long since discarded it from these grounds.

In conclusion, I hope Mr. Editor, neither you nor Mr. Hovey will think I wish to discourage the general culture of the Rhododendron. I only wish to guard others similarly situated against the expense, and particularly the mortification of disappointment.

P. S.—I have here an Abies Morinda that is hardy, but is always a wretched-looking thing. It is on high dry ground. Would it do better on a lower site? Does it do well anywhere?

[Yes.—Ed. G. M.]

CALIFORNIA AQUILEGIAS.

BY W. C. L. DREW, EL DORADO, CAL.

Of this popular family of plants there are several varieties, natives of California. They grow high up in the Sierra Nevada mountains. Aquilegia Californica—this is the finest of our native varieties, and being the only one that is found exclusively in California, it well deserves the appellation of Californica, and although this name is quite appropriate, it has two others, eximia and truncata, so that it is well named. It grows from two to three feet high, very vigorous and strong, and makes a noble plant. The flowers are in shape something similar to A. Canadensis, though the spurs are longer and curve in more like those of A. Skinneri, the stamens also are longer. The flowers are from one and a half to two and a half inches in diameter; they are of a bright orange scarlet color throughout; they bloom late in Summer, the last of August being extremely fine. Like all of the family it is a perennial. Aquilegia Canadensis is also found in California, but as it is so well known now, it will not be necessary to describe it. Both of these varieties are of easy culture, growing readily from seed and blooming the second year after sowing. A. Californica has not been introduced yet, but when it is, it will find favor with all flower lovers.

[*A. truncata* is its proper name.—Ed. G. M.]

EDITORIAL NOTES.

Lily Culture.—The Lily has become so popular in Europe, that some firms have gone wholly into the business of Lily growing. A Lily nursery, a catalogue of which from Belgium is now before us, grows 75 kinds, by the piece, dozen, hundred, or thousand. We note, however, that only three have a place in the thousand column—Colchicum, tigrinum and umbellatum—kinds not hard to increase.

Acer colchicum rubrum.—The beautiful maple described under this name in *Loudon's Gardener's Magazine*, the *Gardener's Chronicle* says is identical with *Acer laetum* of Meyer, and this again, though from the Caucasus, proves to be the same as *Acer pictum* of Thunberg, described in 1776, and which by prior right will therefore be its true name. This species, therefore, grows from the Caucasus through Persia and Cashmere to China and Japan. This, about 7,000 miles, is a very good range for one species.

The Shade Trees of Washington.—We have before us an admirable report on the shade trees of Washington, signed by Wm. R. Smith, Chairman, and Wm. Saunders, Secretary of the Parking Commission.

Among the valuable suggestions is this, that where pavements are made of concrete or broad flags, there should be a foot or so of space left along between them and the curb-stone. We have known cases where the pavement completely covers the sidewalk, and the trees become very sickly for want of air to the roots.

In relation to the loss of street trees by coal gas at the roots, the subject is so important that we extract the whole paragraph:

"There is an annual loss of trees, more or less extensive, from leakage in the gas pipes; the escaping gas permeates the soil and destroys the roots. Perfect immunity from this evil is probably impracticable, and when detected it may be, as in most instances in this city it has been, promptly remedied. The worst feature, however, is that the evil is not discovered until after the roots have been destroyed or fatally injured; the soil is well saturated before the presence of escaping gas is detected, and it is then too late for the application of any effectual remedy. The best that can be done is to remove the injured tree and plant a healthy one in its stead, and even this will not always prove a success, as it is difficult to remove all the poisoned earth, and it usually requires several renewals before a healthy growth is secured. Gas poisoning is the unsuspected cause of many deaths among city trees."

In Philadelphia the loss of street trees by this cause has been enormous. Why should not the gas companies be made amenable for these losses? It ought to be, and it is just as practicable to make a gas pipe, gas-proof underground

as above. And then look at the enormous loss to the tax payers by leakage of gas in this way.

The whole report shows the advantage of having practical men of known character at the head of a public work of this character. Notwithstanding the idea that everything done by public bodies, and especially the Government of Washington, costs much more than it costs individuals, the shade trees of Washington under the direction of these gentlemen, have cost almost nothing in comparison to some others; and in any comparison, we think is the cheapest and best city planting in the Union.

The Periwinkles.—The hardy Periwinkles are invaluable in American gardening, on account of their growing in deep shady places, where few other things will. We have three species under culture. Vinca herbacea, which flowers very prettily every Spring—but as the long trailing branches do not root, they all die back in the Fall, and the plant is really a perennial. Vinca minor, the "Myrtle" of the cemetery people. It is a popular plant for covering graves, and is invaluable for growing under the shade of Pine trees, or in other shady places. It makes a thick evergreen mass. Scarcely a "carpet," but the next best thing to it. Then we have Vinca major—the greater Periwinkle. It is hardly as hardy with us as the other two—is more rampant, and makes less show in out-door gardening. It is best known by its variegated and golden veined varieties, which are so useful in various forms of greenhouse and parlor gardening. There is a fourth species that we ought to introduce, if not already. The *Garden* thus refers to it:

"*The Mauve Periwinkle* (Vinca acutiloba).—This distinct and elegant Periwinkle is now in flower in the herbaceous border in Messrs. Backhouse's Nurseries at York. It is valuable from flowering late in the autumn and in winter, and also from the delicate mauve color of the blossoms. It is not a variety of either of the old and long-cultivated Vincas, but a newly-introduced species from the South of Europe. It is particularly suitable for the embellishment of sunny banks and slopes, and for warm borders."

NEW PLANTS.

Polemonium confertum.—This one of the most beautiful of the Alpine flowers of the Rocky Mountains, has been made the subject of a colored plate in a recent number of the *Garden*. It grows about six inches high, and has rather large blue flowers.

Spiræa palmata.—A beautiful colored plate of this appears in the *Belgian Horticultural Review*. It is a native of Japan, and very nearly approaches our Spiræa lobata, which is also worth more notice than it receives from cultivators. S. lobata is of a pale rose—by the plate this is a deep rich rose—and the heads seem larger and more dense.

Purple-leaved Grape Vine.—The *Gardener's Chronicle* says:—"We may here mention another very beautiful vine, seldom seen in gardens, but one deserving our strongest recommendation. It is the form known in gardens as the Purple Vine, which has the advantage that its leaves are throughout the whole summer (and not in late autumn merely) of a rich claret color. The plant is admirably adapted for walls, rockwork, or rookeries."

Is this a *grape* vine, and does any reader know whether it is in America? By the way, if any one has a cutting of the old sweet scented (male) grape we should be obliged. We fancy it has gone out of cultivation.

The Californian Chestnut.—This beautiful tree—the Castanopsis chrysophylla—will need a little protection north of the Potomac. A correspondent of the *Rural Press* thus speaks of its appearance in its native haunts:—

"The title of golden-leaved chestnut—as the suggestive name implies—is derived from the observation that when stirred by the breeze, the otherwise dark, glossy-green, laurel-like leaves turn their under surface to the sun, reflecting a softened sheen of gold, lighting up its face with a cheerful smile against the somewhat somber background of green; also the young and tender twigs, with their vernal foliage clad in yellow velvet, hold the attention effectually and steadily to its true ideal characteristic feature. This latter quality, seen from a distance in the Spring season of the year, awakens a charming illusion as if the beholder were viewing a magnificent evergreen tree clad in golden bloom.

Aconitum japonicum.—Most of our Monkshoods flower in early Spring or Summer. A Japan species has been recently introduced into English gardens, of which the *Gardener* gives the following account:—"This Monkshood ranks as one of our very best late-blooming, herbaceous plants, and it should be extensively grown in all

gardens where autumn flowers are wanted, for it comes into bloom about the middle of September in Scotland—it may be earlier, of course, in the South—and continues to blossom till near the end of October. As a Monkshood, it is most distinct from others. When well cultivated it grows to the height of 4 ft. Its habit is stiff and erect, so much so that it scarcely requires staking. It throws up bold stiff spikes of large, very deep blue flowers of great substance, which withstand autumn damp and rains well, and last in perfection a long time. Its leaves are thick and palmate, of a dark shining green. For alternating in rows with Tritoma uvaria, to which in color and style it forms a complete contrast, it will be most effective."

QUERIES.

Names of Plants.—C. E. P., Queens, Long Island, N. Y. Both ferns though so different in appearance, are varieties of Aspidium spinulosum. It is possible the proliferous one has a garden name; but if so, we have not met with it. It is worthy of one.

Injury to a Linden Tree.—Mystic says:—"In the Spring of 1875, I tied two thicknesses of heavy cotton cloth closely around two lindens, (set out the Spring before for shade trees in the street), to protect them against the bites of horses. In the Fall of 1876, I took off the cloths and found three spots of dead bark on one tree, and one on the other. The spots were from three to six inches long, about two inches wide, and all on the south-west side of the trees. Three spots had evidently died the first season. Trees from two to three inches in diameter and not thrifty; soil and seasons dry, and hose applied several evenings during the Summer, soaking the cloths as well as the ground with water. Would the dry cloth kill the bark, or the cloth wet by the hose or rain, followed by a hot sun?

[The cloths had probably nothing to do with the death of the bark, but exactly what caused the death, could not be given without seeing the trees, as there are many causes at such work. It may be remembered that the cells in trees are the individuals, and that often whole masses of them will be weakened by various causes. Some cells and masses of cells get stronger, and some become weaker just as in ordinary communities. When the time of trial comes—as in transplanting—and there is a "struggle for life" the weaker ones die first. It is some such law as this which most likely operated to produce the dead spots, and the cloth had nothing to do with it. The cloth more likely would be an advantage.—Ed. G. M.]

Antigonon leptopus.—C. E. P., Queens, L. I., N. Y., says:—"Can you or any of your correspondents tell me to what natural order Antigonon leptopus belongs? Is it a free flowering plant?"

[It is one of the Buckwheat family, (Polygonaceæ). Properly grown it must be free flowering, as plants with a profusion of bloom have frequently been exhibited before the Pennsylvania Horticultural Society.—Ed. G M.]

The best Sciadopitys verticillata.—A correspondent writes that in Mr. Sargent's grounds, at Brookline, near Boston, there are several specimens of the umbrella pine, Sciadopitys verticillata, the largest of which is three feet nine inches high, the growth of the past season having been over seven inches. The same correspondent confirms our opinion of the hardiness of this tree in our northern Atlantic States, in common with nearly all the other conifers of the Eastern Asiatic seaboard. Now, that it is pretty well settled that the California and Oregon conifers will not stand the climate of those States, planters there will do well to bear this fact in mind? If any have a better, let us know.

Variegated Elder.—A New York correspondent asks:—"Can you inform me whether Sambucus nigra foliis luteiis, is the golden blotched variety or Sambucus racemosa variegata."

[We believe this to be a variety of the common English Elder—Sambucus nigra. At least we know that there is one variety variegated of this under culture. There may be one of the S. racemosa also under culture.—Ed. G. M.]

Grafting Magnolias.—G. W. T., New Brunswick, N. J., asks:—"What would be the effect of grafting M. glauca on the M. acuminata? Is there sufficient specific affinity to render success probable? Would not the free growing stock affect the graft so as to give to the glauca, purpurea and other slow growing subjects a more stately habit."

[We know of no cases of M. glauca, being grafted on the acuminata, but think it would do well. The purpurea, no doubt would, as that is closely allied to the *conspicua*, which does so well on it.—Ed. G. M.]

Green House and House Gardening.

SEASONABLE HINTS.

This is the season when many things will require re-potting. Many have a set time and season to do this; but some things require re-potting at various seasons. The best time is just before they are about to make a new growth. Camellias, Azaleas, and many plants, for instance, start at this season. It is not necessary to re-pot so often as some think, especially if bloom, and not very large specimens, is chiefly wanted. If the pot is very full of roots, and the plant growing weak, it may need re-potting.

In potting, see that some provision is made for allowing the water readily to escape, by putting broken crocks over the hole. Use soil rather dry, and ram it firmly about the old ball. Prefer pots only a little larger, to very large shifts, as less liable to accidents. Trim the plants in a little, if unshapely, to encourage the new growth where wanted.

Many who have but small houses and wish to have a variety, are troubled with valued plants becoming too large. To keep them low, as soon as the plant has matured its growth, cut it down as low as may be desired. As soon as it shows signs of breaking forth into a new growth, turn it out of the pot; shake or tear away the old ball of roots, and put it into as small a pot as it can be got into; and when it grows again, and fills the pot with roots, re-pot again as before.

Sometimes the plants get "sick," which is known by unhealthy, yellow leaves. This is usually by over-watering, generating a gas, or, as gardeners term it, a "sourness," destructive to the roots. The remedy is to cut the plant back a little, shake out the soil, and put the plant in a small pot with new soil, and place the plant in a house only moderately warm, and which is naturally moist—so that the plant can live for a while without requiring much water. It will generally recover.

Every one interested in plant growing must be continually on the watch for small insects, which destroy more plants than many are aware of. The little Black Thrip is very troublesome to Azaleas; the green fly to all soft-wooded plants; the scale to Camellias, Oleanders, Cactuses; and the mealy bug to almost all hot-house plants. Continual syringings with warm, greasy water, in which sulphur has been mixed, is the best remedy. Tobacco smoke is still the most approved mode of destroying green fly and thrip.

In window culture tobacco smoke cannot very well be used in rooms, but plants may be put under a tub few at a time, and by the help of fumigators, now common in most florists' stores, the smoke may be injected. Some plants are injured by too heavy doses of smoke. It is better to give a light dose on two successive nights. Whenever fine, warm days occur, the plants, if insect-covered, may be taken out of the windows, laid on their sides on the grass, and thoroughly syringed.

Plants in hanging baskets often suffer from too much water if in glazed or earthen ware, or from too little, if the basket be of wire, or some other open material. There is nothing more difficult than to tell to another how or when to water plants. It is a matter that can only be well learned by experience. We are often asked for a list of good basket plants. In this part of the world almost anything that will grow in a greenhouse is made to do service in baskets. Those we most commonly meet with now-a-days are Othonna crassifolia, Ivy-leaf Geranium, various varieties of evergreen Ivy, Begonias in numerous varieties; Ice-plants, especially Mesembryanthemum crystallinum, M. cordifolium, and M. spectabile, Abutilon vexillarium pictum, Acorus gramineus, Duranta Baumgartneri, Cuphea platycentra, Cineraria maritima, Centaurea gymnocarpa and ragusina; various dwarf Palms, such as Palmettos, Cereus speciosissimus, C. flagelliformis and C. Jenkinsonii, Ficus stipulata, Gelsemium nitidum (advertised in our last by Mr. Barker), Muhlenbeckia complanata and platyphylla, Mahernia odorata, Kenilworth Ivy, Money-wort, Wandering saxifrage, Sweet Alyssum, Mignonette, Petunias, Lobelia, Heliotrope, Reineckia carnea, Rondoletia anomale, Peristrophe angustifolia, Pilea muscosa, Peperomia maculosa, Nierembergia gracilis, Oxalis

floribunda and multiflora, Chinese Primrose, Tradescantias, Santolina incana, Artemisia stellaris, Torenia Asiatica, Lophospermum scandens. This last is one of the oldest plants we



have under culture, remarkably easy to take care of, usually very free from insects, and is in flower almost at any time, when growing, throughout the year. Yet it is very seldom seen. In the hope of making it more popular, we give a representation of it.

POT DRAINAGE.

BY J. M.

Probably experience has long since satisfied most of your readers in regard to this question which has again been raised in the *Monthly*. It cannot be said that all pots must be drained, though the rule to do so is correct. In many florists' establishments where such plants as Verbenas and Geraniums are grown largely, the pots are not drained, as the growth is rapid from from cuttings to plants, and the pots will often fill with roots in a few weeks. If such pots were drained, the benefits though still attained, would perhaps be unperceived in such a short time. But what plants like, is to have the water drain off as quickly as possible, and this is what the crocks in pots are for. Quick drainage is an essential in plant culture. In the Spring or Summer time when the sun is hot, plants in small pots will take up the water in the soil very quickly, and at such times the crocking may be omitted. But in regard to collections of plants, no worse system could be adopted. So liable are such plants as Camellias and Oranges to be injured by under drainage, that at all times they require care to keep them healthy. There is positive injury to plants whenever water cannot freely pass away. Drainage enables us to water with less discrimination, which is quite an object where many thousands have to be done. With pot-drainage our plants are healthier and safer, under ordinary circumstances, just as the farmer's crops are when he drains his land on which water is apt to lie.

[Sound doctrine.—Ed. G. M.]

"FORCING TENDER ROSES."

BY BENJAMIN GREY, DEDHAM, MASS.

Under the above heading your correspondent, "W. J.," in the December number of the *Gardener's Monthly*, criticises an article which I had in the August number of that magazine; and without wishing to occupy too much space, I should like to take exception to some of his remarks.

He seems to think that Roses would be *grown* not *forced*, by the method given; but well-grown Roses may be forced at pleasure; and the method, which he is pleased to call *my* method, is also that of several of the best growers of first-class Roses around Boston and New York—this I know from personal observation.

The days being short in December, it requires double the time to make a given amount of growth that it does in Spring, and the "commercial men" who wait until a week before Christmas, to produce their Christmas Roses, will surely have "troubled faces," and I find that their facial contortions usually result from a knowledge of the fact that they will have to burn more coal. The wood intended to produce the Christmas crop should be grown in October and November, when a house placed in almost any position would get sun enough, and the buds should be set on the bushes by the fore part of December; the application of a little extra fuel would then make success reasonably certain, and give a fine crop of well colored buds.

It is well known that the Safrano, which is the variety most extensively grown for market, delights in a temperature of 50 to 55°, rather than one much higher; and that the Bon Silene, which comes next, loses much of its deep color under the hot sun of the advancing season, and it then becomes questionable whether a house built at "an angle of 55° or more," to catch the sun rays when there are no sun rays to catch, and which, construct it as you will must be high and contain much space difficult to heat, is an advantage after all. I would recommend 40 or

45°, not more, and this would be as great an angle as that at which most houses are built.

"W. J." says, "a forcing-house for Roses should always face south." It would be better to have it face a little east of south; getting the morning sun, which is generally conceded to be most beneficial. And this is why I consider a house facing east and west better; prefering to have the sun early and moderate for eight hours; avoiding airing, and dispensing the delightful growing temperature which such a situation would give, rather than four or five hours strong, and necessitating the use of the ventilators.

"W. J." must not suppose that the writer allows his bushes to get into bad condition, merely for the pleasure of tying them down; but as a practicing gardener it has been my fortune to take one or two situations where through neglect the bushes had got into a bad state; and, at a season, November, when to cut them to break the lower buds, would have been a ruinous proceeding; and by pegging them down I secured a fine crop for the Winter, which my employers informed me excelled any crop the houses had ever given. It is for such cases, or where bushes get too high for the low houses in which they are sometimes planted, that the practice becomes particularly useful, and for such cases the idea was given. After the buds break, the old parts may be cut out and the pegs removed. To cut the head of a rose bush—divest it of all its leaves, and expect it to break strong shoots from half ripened stumps of canes, is a species of vandalism that would never be practiced, and an expectation that would never be entertained by any sound practical gardener. Plants grown in pots may have well-ripened wood, and will stand more severe pruning than those in the border.

The varieties recommended in the former article "may" and *should* "be kept in shape by skillful pruning." As I did not intend giving any full "method" for "Forcing Roses," but only to offer a few suggestions, *vide* opening paragraph of article in question, I did not particularize on the treatment suited to the different sorts named. Marechal Niel is a strong growing climber, and does well, trained near the glass, on a back wall, or to stakes or trellises across the border, if not placed so as to give much shade. Safrano, Bon Silene and Isabella Sprunt may be grown in the same house; but as Bon Silene likes more heat, it should be placed at the warm end. Yellow Tea and Niphitos require more heat than the above named sorts; and as they do not grow so strong, may be grown on the shelf over the pipes. Souvenir de la Malmaison, I think gives better colored buds in Winter when grown in pots, although it does well when planted as the others. The buds are impatient of excessive moisture, which spoils the outer petals in dull weather.

I have drawn my conclusions after years of close observation and practice as a Rose Grower for the Boston and New York markets, where I have disposed of thousands of buds grown on my own account, and also as manager for other commercial establishments.

All due deference for the opinions of "W. J.," which he has a perfect right to hold and advocate; and I believe that equally desirable results may be obtained by different methods, under proper management.

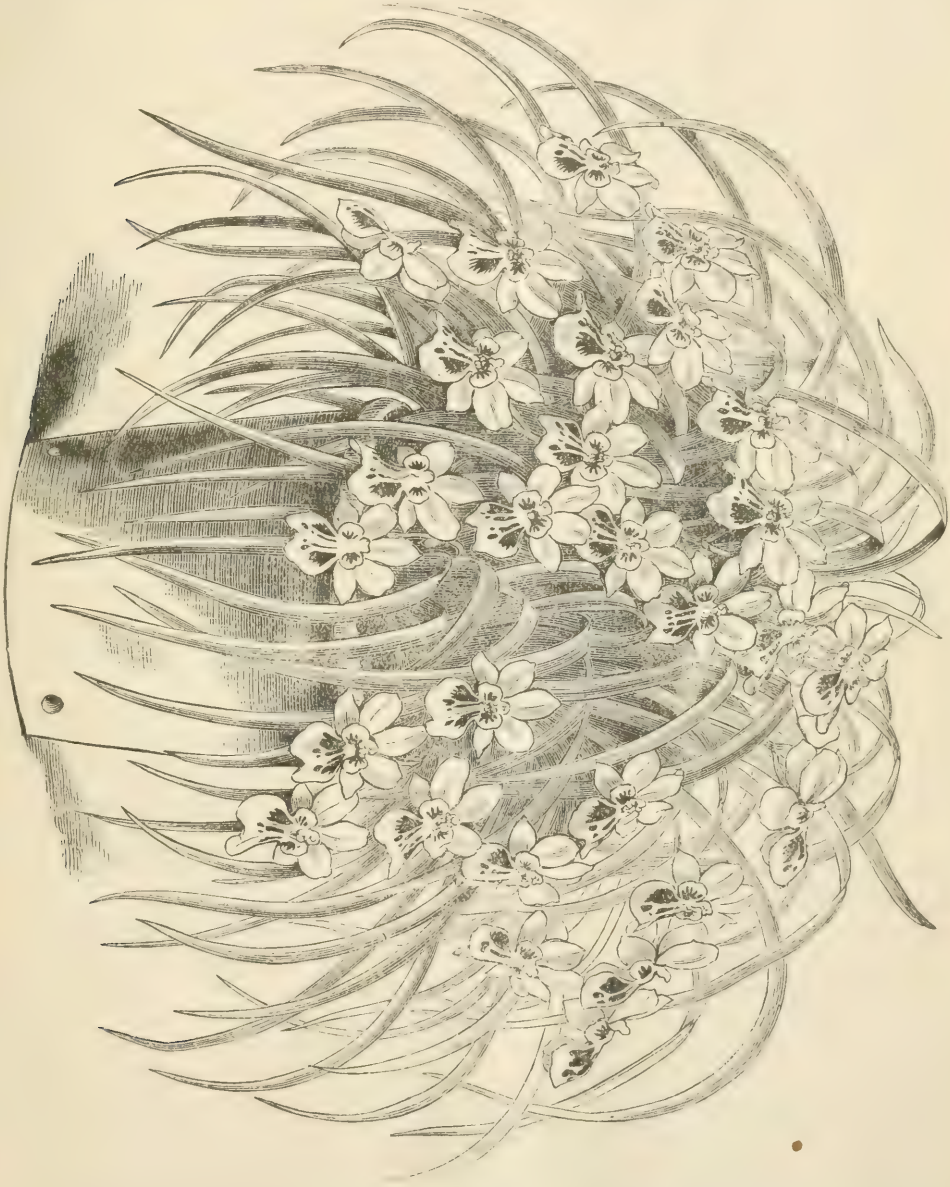
CULTIVATION OF THE ZONALE GERANIUM FOR EXHIBITION.

BY H. CORBETT.

The few remarks I have to set before your readers concerning the cultivation of this old favorite plant, may seem simple to some, but may be of interest to younger readers. Having grown plants for exhibition in England, and set the ball rolling on the same style in this country in the far west of Kansas, I will do my best in giving my system.

The Geranium is one of our finest bedding plants, and makes as good a show for Fall indoor decoration; so I think a few plants (grown as plants) some four feet in diameter, are well worth having. A cutting struck in Fall, can by the next Fall be grown into a plant, three to four feet through. Some people may say it is an easy matter to grow a Geranium; but to grow even a Geranium for exhibition, and bring it to perfection, needs skill and practice. I prefer one year old, strong, bushy plants. Take them in February or beginning of March, and shake off all the old soil, removing a part of the roots; then pot in good soil, and into as small a pot as possible, giving no water until all the soil becomes dry. Then cut your plants close in, so as to leave about two buds on a shoot. Give them a good soaking of water, and they will all break regularly. Keep them now in a small greenhouse, as close to the glass and as cool as possible, so as not to let them suffer, and by Spring you may re-pot them to a seven-inch pot, using equal parts of loam, leaf mould and cow

manure, with a small portion of sand worked through. The seven-inch pots will be large enough to grow a fine specimen some four feet through. Then you can commence to arrange a trellis by placing a piece of wire around under the rim of the pots. Then take three sticks, keeping them trained around. Do not let the shoots run straight out, as they break so much better by training them around. Shut up early of an afternoon, throwing liquid manure water between the plants, to give the foliage a healthy appearance. After the pots get full of roots,



ODONTOGLOSSUM PHALÆNOPSIS.

placing them at equal distances, laying them flat across the top of the pot, and then fasten them to the wire around under the rim to hold them into position. You may now place them out in a cold frame on the north side of the building, give them liquid manure water every other watering, and your plants will break regularly at every eye. Do not stop them while there is room on the trellis, as I find stopping a bad practice. Bring them out gradually to the sun

about six weeks before they are needed, and then allow the flowers to come on, and you will by six weeks have a fine show of Geranium flowers and plants some three feet through. Should you think this worthy of a place in your Monthly, I may give you more of my experience in stove and greenhouse plants, graperies, &c.

[We value this article very highly, and should be much pleased with more of such. Skill in plant growing, at least the evidences of it has been very rare of late, and yet there is nothing which gives so much pleasure as well grown plants.—Ed. G. M.]

EDITORIAL NOTES.

Orchid Culture.—In our country the culture of these plants has not extended very much because of an idea that they require costly houses and great care. In our experience in various parts of the country, we have noted that the most expensive arrangements have generally been the greatest failures, and in many places a large number of kinds seem to do with less care than ordinary greenhouse plants. The flowers are not merely odd, but generally beautiful, and mostly emit a delightful fragrance. In a good collection there are always more or less in flower, so that an orchid house is always a source of great delight. Another interesting point is that in many parts of Europe when an orchid grower dies his plants always bring more than he paid for them. They grow in value with age. We suppose it is not so here yet, because orchid growers hardly know where to find one another; but it will be so one of these days. In the hope of encouraging their growth we give an engraving of a beautiful one, for which we are indebted to Mr. Wm. Bull. See cut p. 43.

Maiden Hair Ferns.—Notwithstanding their seemingly delicate structure, we have noted lately that they seem among the most successful of ferns as window plants. There is a vast variety among the genus (Adiantum) to choose from.

Gas and Oil Light.—The papers tell us that some towns have rebelled against heavy gas bills and other gas annoyances, and have taken to using coal oil. Those who think this a misfortune have at least this consolation, that they can have flowers of all kinds in oil-lit rooms, when they can have none, except by special contrivances, in rooms where coal gas is burned. And then it is healthier, for if a plant die in a certain atmosphere it cannot be good for mankind either.

NEW PLANTS.

Double Poinsetta.—We have from H. A. Dreer, Philadelphia, a head of the Double Poinsetta, showing how very great is the improvement over the old kind. The "doubleness" consists in a greatly increased number of the scarlet bracts which, as most of our readers know, are not the real flowers.

Golden Maiden Hair Fern.—Everybody knows the beautiful Gymnogrammas, or Golden Ferns. It is said that a Golden Maiden Hair Fern has appeared in England, but we suppose it is with yellowish leaves, and not colored scales, as in ordinary Golden Ferns.

Winter Flowering Carnations.—It ought not be forgotten by those who want these for flowering next winter, that the cuttings ought to be put in now. The plants are grown in the ground all summer, and have to be lifted in the Fall carefully to be put into pots.

Fuchsia procumbens.—We were pleased to note this plant offered by one of our advertisers last month. We did not know it was in the country. It is said to be remarkable in having the flowers erect, which is peculiar in a Fuchsia.

Azalea Indica, Empereur du Bresil.—A splendid novelty, flowers very large, very double, quite a perfection of form. The color of the finest pure rose, each petal bordered with a broad pure white band, whilst the whole of the petals are striped lavishly with bright rose and white. The upper lobe is elegantly blotched with brownish red, adding a good deal to the distinction of this really fine new flower. It is no doubt the finest and most distinct variety ever sent out since the introduction of the Azalea Souvenir du Prince Albert, and like that variety it will be duly appreciated by all lovers of this splendid tribe of plants. Azalea Empereur du Bresil is a sport of the fine double white Azalea Reine du Portugal, so favorably known now as a first-rate variety.—*Verschaffelt.*

Triomphe des Doubles Blancs Azalea.—This is undoubtedly the finest and best double white Azalea ever sent out. The flowers are much larger, much finer, more double, and of a purer white than even in the fine variety Reine

du Portugal. The petals are large, round to perfection, slightly undulated, crisped; the centre is occupied by a tuft of pseudo-petals of the purest white. A very free flowering double white variety, which will be grown by thousands for the trade, and become a general favorite.—*Verschaffelt.*

QUERIES.

Starting Cyclamens.—C. S. W., Hartford, Connecticut, writes:—"I should be glad if Mr. Meehan, or some one equally competent, would contribute to the Monthly a short article setting forth the best way of starting Cyclamens outside of a greenhouse. It is a plant that I am quite attached to, but I have always had to give my bulbs to a florist to start for me, never having been able to do it myself, and this I should be very glad to avoid if possible."

[We are always glad to get inquiries like these, as we can help many others who may be under similar difficulties. There is no more beautiful window plant than the Cyclamen, and it is well worthy of any trouble one may take to have it in perfection. The annexed illustration shows one fairly grown, and window cultivators may expect to reach this excellence.



As to starting it, the trouble comes from drying off too much. There is no reason why they should be dried at all in window culture. Keep watering a little all through the season, and they will start at the proper time. They require some little warmth, and this can be helped by placing the bulbs with the pots in a warm part of the room. It does not make much difference if the part is not very light, so that it is warm; but as soon as the young leaves are visible, it must then be removed to a light place.—Ed. G. M.]

Trees for Protecting Greenhouses.—G. G. S., Boston, Mass., writes:—"Please oblige by letting me know which kind of fruit trees would be best to plant to protect my greenhouses from the cold northwest wind, as I would like them better than pine, spruce, larch, &c."

[You cannot have the trees too near the greenhouses, or icicles will blow from them in winter and break the glass. The cherry is one of the most rapid growing fruit trees, and would soon make a screen; but the pear does so well about Boston that we would be disposed to try them. The Bartlett would, on the whole, be the best variety, as it grows moderately fast in comparison with some others. The Clapp's Favorite and Flemish Beauty are also rapid growers.—Ed. G. M.]

Red Spider.—"Florist," Des Moines, Iowa, says:—"In the December *Gardener's Monthly*, speaking of when the red spider becomes an army with banners, more scientific approaches must be made to give any show of success." Now, would you please state some of those 'scientific approaches?' It is a subject in which I am somewhat interested, and probably others are, for in early Spring, when the sun gets hot, and the greenhouse very warm, it is impossible to subdue the little insect by any means of ventilation, or sprinkling, showering or squirting of water through the hose. By all means give us a chapter on the red spider and how to destroy him."

[Sulphur used freely is one of the best remedies against red spider. Many good gardeners wash their flues with sulphur, and the vapor is quite sufficient to keep the red spider down. This vapor does not injure the plants. If, however, the sulphur take fire, sulphuric acid is formed, which will destroy both animal and vegetable life. In some houses it is customary to have sulphur strewn on sheet iron or tin plates, exposing it to the full sun, and this makes vapor enough to keep the red spider down. In the early stages of their appearance sulphur in the water used in syringing does good. For, although the sulphur is not of course dissolved in the water, yet some of the particles of sulphur get distributed with the water. Linseed oil may be dissolved in chalk or dry clay and then dissolved in water. After it has settled it will be found that oil mixes with water enough to be disagreeable, and this water used in syringing proves very disgusting to the red spider.—Ed. G. M.]

Fruit and Vegetable Gardening.

SEASONABLE HINTS.

There is no longer any doubt that one of the worst foes to grape culture in this country has been the Phylloxera, a minute insect which feeds on the roots, and thus seriously impairs the nutritive power of the plant. With its vital resources obstructed, it falls an easy prey to fungi and other destructive agencies, which are ever on the look-out for something to prey on that is weaker than themselves. It is well known that some seasons are not so favorable for insect life as others. Either the natural enemies of the insect abound, and keep them down, or some climatic interference is against them, and in those seasons the plants get along better. This seems to have been the case with the grape the past few years. In spite of the Phylloxera, and all other enemies, the grape has done remarkably well the past few years, and we are coming to look on it as, ascertain a crop, on the whole, as the average of fruits. A few years since, we had to say to our readers that it was useless to rely on many other kinds but Concord and Clinton. These grapes have very branching, fibrous roots, and there are generally enough escape the Phylloxera to keep up a tolerable healthiness. But we can now rely on others tolerably well, and such well-proved kinds as Delaware, Diana, Salem, Martha, and others of about the same historic age, find frequent planters. The new kinds, such as Brighton, Lady, Elmira, and other candidates for popular favor, find purchasers in goodly numbers, and the whole prospect of grape improvement and progress is encouraging. It is well to remember that the grape likes a dryish soil, rich earth, and likes to send its roots out into cool places when the summer is warm.

The rule, in pruning grape-vines, is to shorten the shoots in proportion to their strength; but if the advice we have given in former summer hints has been attended to, there will be little disproportion in this matter, as summer pinching of the strong shoots has equalized the strength of the vine. Those who are following any particular system, will, of course, prune according to the rules comprising such system. As a general rule, we can only say, excellent grapes can be had by any system of pruning; for the only object of pruning in any case is to get strong shoots to push where they may be desired, or to increase, with the increased vigor of the shoot, which pruning supposes will follow the act, increased size in the fruit it bears.

Of the Fruit Garden for February we may say in a general way—Raspberries and Blackberries may be planted towards the end of the month; they should be cut down to within a foot of the ground at planting; they will of course, not then bear the next season after planting. But this is a benefit; no fruit tree should be allowed to bear the same season. In planting these have a care of deep planting. Even two inches lower than the roots are, is often fatal. Plant on a dry day, barely cover the roots; but beat or press the soil very hard and firm.

As to the best varieties of fruits to plant, that is a question which a work, intended as ours is for the whole United States, cannot answer. We are continually publishing fruit lists adapted to the different sections in the body of our work, and to them we refer.

One of the most interesting parts of a vegetable garden is a hot-bed for starting seeds early. The end of the month will be time enough for those who have not command of a large supply of stable manure, as the very low temperature we often get at the end of the month, soon absorbs all the heat the hot-bed possessed. It is in any event best to put up the beds in the warmest and most sheltered spots we can find, and to keep cold winds from the manure, by covering it with branches of trees, or mats; and the glass should always be covered with mats at night. Tomatoes, egg-plants, peppers and cucumbers, are the first seeds to be sown this way. Cooler frames can be got ready for cauliflower, lettuce, beets, celery and Early York cabbage, a little of which may be sown about the end of the month for the earliest crops. The Cauliflower is a particularly valued vegetable, and no expense spared to get them in perfection will be regretted when one's efforts are successful.

Those who have hot-beds will now sow tomatoes, egg-plants, peppers, and other vegetables that can be forwarded by this means; and those who have not, will sow them in boxes or pans, and forward them in windows. Every garden

ought to have at least a few hot-bed sashes to forward early vegetables; for if they have no means of applying artificial heat to them, the sash will of itself forward some things considerably.

About the middle or end of the month, or still later at the North—say the middle of March—celery and late cabbage may be sown. Here we usually sow the second week in March.

In the anxiety to have early crops, people often work the ground while it is wet. But nothing is gained, not until it will powder when it is dug, is it fit for turning up.

COMMUNICATIONS.

PLAN FOR A SMALL VEGETABLE HOUSE.

BY W. T. BELL, FRANKLIN, PA.

Thinking that my reply to the following letter, might be of interest to some of your readers, I send you a copy for publication:

"Dear Sir:—Seeing your article on Greenhouse Furnaces, in August number of *Recorder*, I take the liberty to ask you a few questions on the subject.

"I have grown plants for sale, for the last two or three years, under glass, with good success. I started tomato plants in the house last season, and had them quite early for market; but the little hands are growing, and I am afraid to risk them there again.

"I purpose to put up a small greenhouse, and am ignorant of the best plan to build one; and would like to ask you if the following plan is a good one.

"I think about 21 feet by 10 feet, would be large enough. I purpose to dig it out the above size, and wall up with boards, about two feet above the ground; and have the middle of the roof about two feet higher than the sides; with a cistern for water, about eight feet square, and three feet deep.

"Now, should the cellar for the furnace be five or six feet below the floor of the house, or that depth from the top of the ground? What size glass is best for the sash? Is one foot fall enough for the roof, or would more be better? Would it do to have a coal-stove in the house, instead of a furnace? As I wish to grow only vegetables for early marketing; commencing to fire about February 1st. Will you give me your idea on the above, or give me your plan for the purpose?

Yours, etc., ————,

————, Md."

If I wished to build a vegetable house of the size you mention, I would make it on the surface of the ground; boarding up the sides with rough, cheap lumber, nailed to posts set into the ground, and bank up with earth nearly to the eaves.

This would make a warm house, and it would be drier than if excavated. If you have no shed at the end of your building, and do not need a cellar in connection with your greenhouse, dig a pit at one corner of the house, outside, large enough to give room to work your fire, put a roof over the pit, and proceed to make your furnace and flue, as mentioned in the article you refer to.

If you expect to use a fuel that will not choke the flue, build the flue along one side of the house, across the end, and return along the other side, to the chimney. Have door to greenhouse, in end, directly under the comb of roof; and benches along each side, with a narrow space at back of bench, to allow the warm air to pass up behind the bench. The sash should be made, not less than 1½ inches thick, without cross bars, except at top and bottom, and should be painted before being glazed.

Double-strength glass is the cheapest to use; which should be bedded in putty, and securely fastened with large glazier's tacks. Glass 8x10 inches, is a good size to use, placing the long way of the glass with the long way of the sash. The slope of the roof, should be not less than what carpenters call a quarter pitch, to carry off the water properly.

If you are well supplied with water, on your premises, I would not make a cistern in greenhouse, as a barrel of water standing under one of your benches would last you two or three days. A coal-stove in your greenhouse would not prove satisfactory.

I hope the hints I have given above, may be of service to you, for the sake of the *little hands* you mention, if for nothing else.

DECAYING PEAR AND APPLE TREES.

BY GEN. W. H. NOBLE, BRIDGEPORT, CONN.

Let no one cut down such, as "cumberers of the ground;" there is yet wonderful vigor in their bark and limbs. But they want your "help to their infirmities." Thereby good kinds will yield

us luscious crops for years, before the young tree in its stead, matures into bearing. If the fruit of the old tree is not choice, graft good kinds into its sound shoots and limbs. They give return on such, much sooner than on young trees. The pear and apple, especially, reward our kindly help to their waning powers.

But do your work with thoughtful care. A good deal of chisel and mallet surgery must be used. The horse-shoers foot-knife is therefore in parts a very useful tool. But all your cutting and sawing and cleansing must be followed by the very choicest culture and tree food, top dressed. The right method and scope of the work can best be shown by examples.

Twenty-five years ago, I came to live on an ancient homestead, full of old fruit trees. Among them was a venerable Harvest Pear, Annie Johannot, going to the bad. Its limbs were decayed and tumbling. One side of its trunk was gone. The whole heart wood worm-eaten and rotten. The half shell left of its body had only about three inches of bark and sound wood. Yet it was still making vigorous growth of stout young shoots. With gouge-chisel and mallet, I dug out all the worm-eaten and decayed wood, covered the sound wood beneath with thick paint, and stopped all the holes of ants or borers. All unthrifty and rotten limbs I lopped off. Then wide around the tree, with lavish hand, I spread on the top surface rich manure. The sound limbs I grafted with choice pears.

Under this thorough surgery, food and nurture, the old thing about to be turned into the wood pile, has grown and flourished with abundant return for my care. Thus for twenty-five years, it has been a comfort and most useful test-place to get quick returns for good fruits, old or new.

The same regimen will win for the apple trees like rewards. I never had one quite as bad off as that old Harvest Pear. But lots of them with hollow trunks, and great rotted and worm-eaten limb-holes. The way to serve such, is to dig and scoup out all the decay. Somehow, get down to the solid wood; then fill the holes with good hydraulic cement, and where very large, mix and pack into the cement, with an iron rod, a lot of sharp small stones. Fill plump to the surface. Let the edges of the cavity be brought close to the bark. It will then gradually curl in and heal over the edge, and sometimes the whole wound. You thus shut out moisture, air, and all the nameless things that live and fatten on decay. An old tree so saved, is worth a half dozen young fellows, for whose show of fruit you must wait for years. You will find the process of waste and rot to stop, and your tree start ahead with the vigor almost of a renewed youth. Still "*il faut la jeunesse*—a little of that youth you recall by your care.

DISEASE IN PEARS.

BY BEURRE, LOUISIANA, MO.

The writer has been much interested in the perusal of Prof. Brainard's views on Pear blight, but more so in examining your comments upon his theory. If not out of place, you will please answer the following questions, viz.: Is the disease called blight, in your section the same that proves so destructive to our trees in the West? Does not starvation have something to do with the disease in the East, as well as in the West? Every season shows us here that sound trees of hardy sorts, planted in well-drained soil, properly cultivated for three years and the surface supplied with proper plant food, do not blight, or more properly starve. Pear trees die here, and they usually commence dying at the extremities, turning black, as death proceeds downwards. An occasional spot is discovered on the trunk of a tree which seems to be otherwise sound. This spot if examined with a lens when not more than one-quarter of an inch in diameter, will be found to have a puncture in the centre, probably made by some misguided insect which oviposits in a tree that does not furnish proper food for its young, as no larvæ have been discovered in the affected part in this section. The poisonous egg dissolves very soon, and extends rapidly until it becomes too much diluted to decompose more sap. The dead bark remains stationary, while the living bark around the poisoned spot swells out, leaving a depression. If the dead portion extends half around the limb or trunk, it usually kills, with us. It will probably be objected, that the instinct of injurious insects is perfect, and that the provident mother never oviposits in the bark of trees that do not furnish food for the young larvæ. To this objection it may be safely said that instinct in insects, in many instances, proves to be imperfect. The snout beetle called curculio, will not climb a plum tree, the limbs of which rub against the side of a building, or where vibratory sounds are produced by wires stretched from tree to tree. The sounds will not injure him, but his imperfect instinct

admonishes him to keep a safe distance from such trees. By scarring the sound edges of the bark around the sunken portion in the month of June, the diseased spot will soon grow over and the tree is not apparently injured. When the limbs of recent growth commence to turn black with us, and we remove portions of bark, the whole shoot is found to be drying up, and no slimy, decomposed sap can be found, while all eastern writers claim that by breaking the bark a slime or mucilaginous substance will at once ooze out, and string down to the ground.

These two opposite symptoms would seem to indicate a different cause of death. Out of several thousand Pear trees in my own bearing orchard but one has been killed by spot blight within the last five years, while seven have starved to death. Those trees that were sound when planted, and supplied with plant food in abundance are sound, and even the intense freezing of 1872, which congealed the mercury here, did not break down the tissues of the sap vessels of certain hardy sorts. Forest trees were worse crippled that winter than Pear trees, so that in this section the "frozen sap blight" theory won't do; particularly when it is remembered that the Autumn was warm till quite late, and the freeze came upon us suddenly. It seems to the writer not difficult to prove that the main cause of the destruction of this noble tree in the West is *starvation*. The same cause may operate to some extent in the East. But to handle this much vexed question with comfort to the reader, the earthy matter contained in the wood, bark and fruit, as well as the peculiar appetite of the tree must be placed before him.

[The *Fire Blight* in the East, is just the same as that in the West. Situation makes no difference—soil makes no difference—system of culture makes no difference. It comes to any and all trees, once in a while wholly unexpected, and leaves the locality often as suddenly as it came. Trees which die gradually from the tips downwards, are not suffering from "Fire blight," but from some other disease. There are many sources of disease—many symptoms. Under some circumstances the sap does freeze, and then "frozen sap blight" is a reality.—Ed. G. M.]

TWO GOOD PEARS.

BY J. M. H., DOVER, NEW HAMPSHIRE.

It is often with fruit growers as with those of other occupations, the things that have proved good, and are really valuable are often overlooked or crowded aside to make room for some new claimant for public attention. Often the new article or fruit takes the lead for a while, but soon disappears and is wholly lost sight of. Pear cultivators in this vicinity are apt to set too many new varieties for profit—those that have not been fully proved. And I wish to commend to the cultivators of the northern portions of our country, through the *Gardener's Monthly*, two Pears which have been tested and are suited to the North. These are the Buffum and the Sheldon, both of them pears of American origin, and two as good varieties as have been produced in America. The Buffum, if it were a little larger, would certainly rank with the best of pears. The tree is a fine grower, forms a regular head, and is highly ornamental in any orchard. The Sheldon is a fruit that cannot be surpassed amongst pears. The tree does not make so regular and symmetrical a head, yet it is as hardy as the Buffum. These two Pears are worthy the attention of fruit growers, and if more attention were paid to these, we should not hear so much of the failure of pears on account of the severe winter.

EDITORIAL NOTES.

Fruit Synonyms.—It is time Europe had an association similar to our American Pomological Society. For want of such, Europe is bothered with synonyms. A recent writer tells us that there the May Duke Cherry has sixty-two different appellations, and Queen Hortense has thirty-two; Peaches, Grosse Mignonne, fifty-one; of the Pears, Doyenné d'Hiver, fifty-six, and Catillac, sixty-eight. The two familiar varieties of Grapes, Frankenthal (Black Hamburgh), and Chasselas de Fontainebleau (Royal Muscadine), have fifty-five and forty-one synonyms respectively.

Thinning Fruit.—We have always contended that a man who makes fruit growing a business, and allows his trees to be injured by overbearing ought to suffer. It has been objected against us that thinning does not pay,—but A. S. Dyckman, who has extensive Peach orchards at South Haven, Mich., gives the Horticultural Society of that place the following account, in substance, of his mode of thinning the crop: A part of the thinning is effected by pruning, when this is needed. The cost is about five cents per bushel,

and the market price is often doubled by the operation. The rule is to leave one peach on a shoot six inches long, and two on a limb a foot long. Make the spaces between them as even as practicable. For this purpose it is often necessary to remove nine-tenths. Finish one branch at a time; work from the centre of the tree. It saves labor at the regular picking, assorting and packing. Another important advantage is, in preventing the exhaustion of the trees. The work is done soon after the fruit sets.

Vegetable Eating.—We often fancy foreigners misrepresent us, but if so, it is no more than the fate of all nations. We have been reading recently a report on English Gardening, by Dr. Mertens to the Belgian Government, in which he says the English grow "hardly any vegetables but Rhubarb and Seakale, and these they greedily devour."

Peach Disease in California.—The yellows do not appear to be troublesome to a Californian Peach orchard, but the curl is a fearful pest.

Peach Disease in the South.—A correspondent of *Our Home Journal*, writes of a mysterious disease which attacks the Peach trees down there. As the lowest temperature is seldom more than 5° below freezing point, it cannot be from cold. He says:—"Many of the trees are dead, root and branch. Some are dead down to the roots, from which a few suckers are springing up, from each of which I mean to train up one to see what it will do. The trees that are not dead have a sickly and wilted look—scarcely any leaves, and perhaps half a dozen peaches to the tree.

My orchard is on the warm, southern slope of a sandy ridge or tongue of high land, projecting into the salt marsh, with water on both sides, and sheltered on the north by a heavy growth of live oak and magnolia. The sap flows early, but I have never known the fruit germs killed by frost. And this season, as I have said, two-thirds of my trees have exhibited no signs of life at any time, and now stand leafless and sapless."

American Blackberries in England.—With their knowledge limited to the wild fruit of the hedges, it is no surprise that the English, wonder at the popularity here of our improved sorts. But one who has tried the Lawton in England, writes to the London *Journal of Horticulture*, that it is really "delicious."

The Cornish Gilliflower.—Early in December we saw a barrel of this variety on sale in Philadelphia, the first time we had seen it in many years, and were really surprised to find how superior was its excellence. The vendor could give no guess as to the locality it originally started from.

We are reminded of this sort now by a beautiful engraving in the *Garden*, which gives the following account of its history:—"As far as I can remember (says Mr. Boscawen), a certificate was given to Sir C. Hawkins, of Trewithan, Cornwall, in the year 1822 or 1823 by the Horticultural Society of London for fruits of this apple. Sir C. Hawkins found it in a cottage garden near Truro. It is my opinion that it is a seedling from a very old Cornish variety called the Spice Apple. There are two, if not three seedlings from it in Cornwall—one at Mr Richard Bolitho's, in Penzance, which is earlier than the one I sent you, but not so good. I have heard of another, but can't say anything about it. The apples I sent were from a graft of the original apple at Trewithan, and therefore is the true Gilliflower, or July Flower, as it is sometimes called. The name, I believe, was given in consequence of its scent being like that of a Gilliflower Carnation. I have found the apple easily cultivated, not only in Cornwall, but in the Midland Counties. One year when the crop failed in Cornwall, apples were sent down here from Berkshire quite as fine, if not finer than those usually grown in Cornwall. This apple likes an eastern aspect, and must be pruned carefully, as the blossom buds are at the ends of the shoots. It keeps well, and is ripe about the end of November.

The Baldwin Apple.—The *American Cultivator*, says: "The original tree found in a wood, is still standing on the Baldwin farm, at Woburn, Mass. Loammi Baldwin was then the proprietor.

Cultivated Pine Apples.—People accustomed to the miserable stuff sold in the markets for Pine Apples, have no idea of the delicious character of cultivated fruit, as grown by gardeners. And yet because "Pines" can be bought cheaply, they are seldom grown. At a recent meeting of the London Horticultural Society there was an award to Mr. Ross, Welford Park, Newbury, for four smooth-leaved Cayenne Pine Apples, weighing respectively 7 lbs. 4½ ozs., 8 lbs. 5 ozs., 9 lbs. 2½ ozs., and 10 lbs. 5½ ozs. The suckers which produced these fruits were potted in 6-inch pots in June, 1875, and shifted into 11-inch pots in April, 1876.

EXQUISITE PEACH.—Mr. Tillery in the *Florist and Pomologist*, says:—"This *American* Peach is a very noble one." Do any of our readers know anything about it? It is described as yellow fleshed.

FALL FRUITING STRAWBERRIES. — How the forced Strawberries to which we recently referred, were made to produce in the Fall so freely, is thus told by the London *Journal of Horticulture*:—"We have to-day,(November 14th) seen a further supply of Strawberries from Rabley. The fruit was perfectly ripe, medium-sized, and well colored. The plants producing this fruit were forced last year, and afterwards planted in the open ground: on showing trusses in the autumn the plants were again potted, and two hundred of them are now in full bearing, and very valuable."

HARDINESS OF WILSON'S EARLY BLACKBERRY.—The *Country Gentleman* says that this variety is not hardy much farther north than Philadelphia. We had no suspicion of this fact before, and would like to know if it is the universal experience. Had we been asked, we should have said it was as hardy as Lawton or any other kind.

THE MAINE GRAPE.—This, which some years ago correspondents of the *Gardener's Monthly* showed was not different from Concord, is being pushed again.

THE ENGLISH WALNUT.—It would be interesting to know how far north the English Walnut matures. A correspondent of the *Country Gentleman*, speaks of its doing very well in Essex County, New Jersey, ten miles west of New York City.

JERUSALEM ARTICHOKES.—A correspondent of a London paper wonders that "a plant so prolific as the Jerusalem Artichoke, should receive so little attention." We fancy the reason is, that they who try them find they can do very well without them. With port wine, drawn butter, or some addition they make passable eating, but are but poor at best.

NEW PLANTS.

THE JAPAN PERSIMMON.—The Diospyros Kaki has fruited the two past seasons in California.

THE JAMES VEITCH STAWBERRY.—A Yorkshire correspondent of the *Garden*, Mr. Lovel, Weaverthorpe, says, "that among forty varieties of strawberries which he grew last year, the largest was James Veitch, eight fruits of which weighed one pound. This season it took from seventeen to eighteen to weigh one pound, a result partly owing to the cold, frosty weather which we had in May and June; so severe, indeed, was the frost in June, that all the earliest bloom was destroyed. The large fruits gathered in 1875 were Cockscomb-shaped, not those of a globular or conical form, which is the normal shape of this variety. He noticed also in these large strawberries a great tendency to decay, if in contact with the damp soil. He has gathered during the past season very fine and large fruit from Dr. Hogg, President, and Sir Joseph Paxton, all first season plants. Many of the finest fruit of these kinds weighed nearly one ounce each. He considers these three varieties superior in many respects to James Veitch, especially as regards quantity and quality of fruit."

CAPTAIN JACK STRAWBERRY.—This variety, introduced by Mr. Samuel Miller, of Bluffton, Mo., proves of value East. Mr. Parry says it compares favorably with Wilson's Albany in most respects, and is of better quality.

FRENCH PIPPIN APPLE—Under the name of French Pippin, Mr. Youngken sends us fruit remarkable for the great weight in proportion to its size. It is but ten inches round, yet weighs half a pound. With the exception of its stem, which is rather longer than the apple and somewhat slender, it has very much the character of the Fallowater, and Mr. Y. says that it has very much of the wood and growth of that apple. He thinks it in every way a superior kind to Fallowater. An orchardist obtained a large number of Fallowaters from a nurseryman named Lukenbach, and this one appeared among the number and is supposed to have "come from France," "whence its name," and to have got with the others by accident. It is too much like Fallowater to sustain this view. It is most likely one of these curious instances with which orchardists are now becoming familiar, of sudden departures from the original type, independent of seed agency; but whether in consequence of some hybrid influence between graft and stock, or some other law of change, is not well determined. We should like to know whether any body has a ten inch apple that will weigh this much. It seems to us that if such an apple as this had

fallen on old Newton's head, he would never have been able to tell us of gravitation.

THE SWENKER APPLE.—We have from Mr. J. G. Younken, of Quakertown, Pa., specimens of this apple. He represents that it is a seedling of some forty years ago, which appeared naturally on the farm of Geo. Swenker, of Richlandtown. As a rule we are opposed to any more new apples, unless they seem to have especial points of merit, which this one appears to have. It is a handsomer looking apple than Baldwin, and has a more crisp and pleasant flavor. Mr. Y. reports that it will bear bad usage well, and this is one of the points supposed to belong to Baldwin especially. The specimen before us is ten inches round, a little depressed (9½ inches), tapering sharply towards the apex, medium slender stem, small closed calyx in a rather wide, shallow basin, and of a deep red color, with splashes and stripes. This is December 12, and it appears as if it would keep for months yet.

QUERIES.

GREASE FOR PEAR TREES. — Mystic asks:—"Some say fat will injure pear trees. Will fat, or grease or dish-water from the sink, incorporated with the soil, injure trees or vines? If beneficial in moderate quantities, is there danger in large quantities?"

[It is no doubt only the salt in the dish-water that injures the trees.—Ed. G. M.]

THE SICILIAN HAZELNUT.—J. C., Chelsea, Mass., writes:—"In the December number of the monthly I find a communication from E. S. Mason, Detroit, Mich., stating his experience with the Sicilian nut. Having had an opportunity of seeing them growing for some years past, in a garden in this city, I may state that I have had the general charge of the grounds for many years past. The gentleman purchased one dozen plants, it may be eight years ago; every one lived, have grown vigorously, and for several years back have borne a quantity of fruit, and we think here that it is a superior nut, many of them of extra size and quality; many of the trees are also now of good size. We have propagated many by suckers, some of them make wood five feet long in one season."

STRAWBERRIES FOR MARKET.—J. S., Allegheny City, Pa.:—"I am desirous of planting three acres of strawberries this Spring for market purposes. I have plants of Wilson's Albany, Monarch of the West and Kentucky. Can I get any better sorts? I propose to plant three feet by one. How much bone dust per acre, putting a little to each plant? Your advice will be prized by many readers of your valuable magazine."

[You would do better with the rows two feet apart than three. The best varieties for market depends very much on the method of culture. Your old-time neighbor, Knox, found Jucunda and Triomphe de Gand more profitable than Wilson's by *his* system of culture. You might add Chas. Downing to your good list. It is a good "standby."—Ed. G. M.]

NAME OF APPLES.—W. J. E., Indianapolis, sends some very fine apples for name, the tree supposed to have been brought from Ireland originally. Some good judges, to whom we submitted them, pron it ounce "Ortley," but there seems to us some points of difference. It is a better apple than Ortley, as we generally see it.

FORESTRY.

EDITORIAL NOTES.

THE BEECH IN INDIANA.—S. M. Coulter says in the *Botanical Gazette* that over one-third of all the forest vegetation of Jefferson County, Ind., is of Fagus ferruginea.

WALNUT FOR TIMBER.—Californians seem interested in timber culture, like the rest of the world. The *Pacific Rural Press* says:—"It has been discovered by the farmers on the plains in Solano and Yolo counties, says the *Colusa Sun*, that the black walnut, although a native in this State of the low lands, is better adapted to the plains than any other tree. All residents of the districts of country at the East where the walnut grows, will remember that a walnut stump is the very hardest to get rid of. It sends down a

longer tap root than any other tree, and hence its perfect adaptability to our dry plains. The walnut should be planted first where it is intended to grow, as any transplanting is apt to interfere with the proper growth of the tap root. A large number of these trees have been planted around Dixon, and from a conversation about it with a gentleman fully posted, we concluded that it was the very best thing our farmers could do. The cost of the trees is almost nothing."

Foreign Trees.—Mr. Sargent writes to the *Massachusetts Ploughman*, that after an experience in the foreign larches and American raised, he finds that the home nurseries can supply them 60 per cent. cheaper. If only our people would show a disposition to encourage home nurseries, this experience would be much more common.

Premiums for Forests.—A correspondent of the *Massachusetts Ploughman* recommends that premiums should be given for the "best forests on the poorest lands, within a specified time from planting," as a means of finding out the best trees for such situations.

Wild Cherry Timber.—A Massachusetts correspondent of the *Ploughman*, referring to Cerasus serotina, says:—"You cannot have for many purposes a better tree than the wild cherry, and it is a rapid grower. It is found in all our forests. And what is better or handsomer for the interior work of houses and for cabinet work than the wood of the butternut tree, and this, a rapid grower on rocky soil as well as good, in any part of our State?"

Native Trees for Timber.—A correspondent of the *Massachusetts Ploughman*, writing from Wood's Hole, Mass., says:—"Now while there is a great value in the Scotch larch, and it is a very desirable tree to introduce, yet we have many native trees that for all or most purposes, are quite as valuable, and some more so. I have planted some chestnuts (seedlings) and have been astonished at their rapid growth. Yet this tree is probably as good for railway cross-ties as the larch, and for cabinet and some other purposes better. Why not then encourage its reproduction?"

Sweet Gum as Tan Bark.—One of the most useless trees of the South, and yet one of the most abundant, is the beautiful Sweet Gum, Liquidambar styraciflua. In the last number of the *Monthly*, reports of the Department of Agriculture, Mr. McMurtrie, the chemist of the department, says that the bark contains 8.36 per cent. of tannic acid, which is more than any of the oaks give, as per the same table which we give below. The "Quercitron" we suppose is Quercus *tinctoria*, and not "nigra," as therein stated:

	Per cent.
Ground sumac, (mixed,) Winchester, Va.	24.18
Sumac, (*Rhus cotinus,*) Hallsborough, Va.	24.08
Sumac, (*Rhus glabra,*) Georgetown, D. C.	26.1
Leaves of sweet fern, (*Comptonia asplenifolia,*) near Boston, Mass.	9.42
Leaves of *Polygonum amphibium*, Nebraska	11.6
Ephedra antisyphilitica, table-lands of Arizona and Utah	11.9
Bark of sweet gum, (*Liquidambar styraciflua,*) District of Columbia	8.36
Bark of red oak, (*Quercus rubra,*) Canton, Ill.	5.55
Bark of white oak, (*Quercus alba,*) Canton, Ill.	7.85
Crushed quercitron bark, (*Quercus nigra,*) Winchester, Va.	6.47
Bark of *Quercus coccinea*, Canton, Ill.	7.78
Bark of *Quercus marcrocarpa*, Canton, Ill.	7.85
Bark of hemlock, (*Abies canadensis,*) Van Ettenville, N. Y.	9.5

QUERIES.

Range of the Tulip Tree.—An Ohio correspondent inquires how far north this tree is found. We believe that both it and its neighbor, the Magnolia acuminata cross the lakes, and are found sparingly in Southern Canada.

Eucalyptus in Ohio.—We have now an inquiry from a correspondent about making a plantation of this in Ohio. Is it possible that after all we have said about this in the *Gardener's Monthly*, there should be any reader of our magazine who does not know that this tree will endure *no* frost?

Forests and Rain-fall.—"Bois," Woburn, Mass., writes:—"I do not want to meddle much with the controversy on this subject, but every feather has its weight, and I will throw mine in. I think there is no doubt that there are many instances where streams have become dry of late years—and there seems no reason to doubt that the seasons are drier—that the rain is not so well distributed, and that there is less snow. But I regard it as due to an increase of forests instead of a clearing off of land. In our State large tracts have been left to grow up to timber that was under culture 50 years ago. I am sure from my own observations that while the forest area of the State has increased at least twenty per cent. in a half century, the rain-fall has gradually diminished—or at least the rain does not fall as regularly through the season as it used to do."

[Is this a fact that the forest area of Massachusetts is greater than it was? What says Prof. Sargent?—Ed. G. M.]

NATURAL HISTORY AND SCIENCE.

COMMUNICATIONS.

FACTS RELATIVE TO "RAIN FALL AND THE LAKES."

BY MR. E. HUTTELEN, LE ROY, GENESEE CO., N. Y.

In the November number of the *Gardener's Monthly*, three copies of which have been sent to me, in two of the same, I find the article "Rain-fall and the Lakes," marked. It calls for facts, of which I present a few that are quite prominent. Western New York is watered by several large streams, but they are gradually *drying away*. Many small streams that once helped to swell them, are not now to be found. A dry stream-bed which crosses this farm, once furnished power for a grist-mill. That was about sixty years ago, when this section of country was nearly covered with timber. Now the mill is in ruins and the stream is dry. For thirty years I have lived by the side of it, and have seen it diminish in exact proportion as the timber was cut away around its source. A few miles west of us is another dry mill, on what used to be another stream. From a weather journal I find that the summer showers from June 1st to September 1st, have fallen off in number 11½ per cent. in thirty years.

"The Falls of Niagara have *not* decreased in volume, neither have the waters of the Mississippi diminished in any material degree," though many of the smaller streams that once fell into it near its mouth, have disappeared; and although the waters of the upper lakes have not gone down to a perceptible extent, Ontario, which receives them all, has in fifty-six years uncovered 18 7-12 feet of beach, and is still going down, showing that its own tributaries are constantly diminishing. When the country by which the upper lakes are surrounded, becomes as destitute of timber as that by which Ontario is surrounded, their waters will diminish and also those of the Mississippi.

Six thousand miles in the saddle, demonstrated to me that the timber belts were the factories wherein were made the summer showers. The Indians understand it, for I said to one of them that I would not like to live in that country, because it was so dry; and his response was, "Much dry, no big bush, no rain big." This was in the "far West and South-west," and the same rule is being developed here.

[We hope people will plant trees. There is profit in tree planting, and will be more. So far as these meteorological matters are concerned, it is well to remember that not one man in a million is competent to decide where the "source" of a stream is. We can tell where the water issues from the ground—but it often runs hundreds of miles beneath the surface before we see it. Cutting away the trees along the banks of a stream, can therefore have no possible influence on the water at the "source." Geological reasons have often much to do with a diminished water supply.—Ed. G. M.]

EDITORIAL NOTES.

FERTILIZATION OF FLOWERS THROUGH INSECT AGENCY.—There are signs that what we have regarded as extreme views about this matter, are weakening. Some two years ago, the general one was, substantially that of Sprengel, who nearly three-quarters of a century ago, declared that nature does not intend any plant to be fertilized by its own pollen. This view has been held by many of our distinguished botanists.

In the Fall of 1875, Prof. Asa Gray spoke on the subject at the sixth semi-annual meeting of the Holyoke Seminary, and is reported by the *Scientific Farmer* to have said:—"All plants with showy, fragrant, honey-bearing flowers, are arranged for cross fertilization. Nature abhors in-and-in breeding, and like a wise teacher shuns the practice."

So widely had the idea taken root, that in *all* plants, nature shunned the practice of in-and-in breeding, that failure to produce seed became generally attributed to a lack of certain insects; and, because the first crop of clover in this country, and all crops of clover in New Zealand were thought not to produce seed, it was supposed the lack of insects was to blame. Last year humble-bees were shipped to New Zealand, because the tongues of the honey-bees were thought not long enough to penetrate to the bottom of the red clover corolla tubes. The writer of this, so far as

he knows, stood alone in pointing out that many of the supposed facts were erroneous, and that the interpretation of the others was doubtful.

In the January number of the *American Agriculturist*, Prof. Asa Gray has another paper on this topic, from which we take the following:—"Cross fertilization we may well believe, is the best thing, but it is risky. Cross fertilization, tempered with self fertilization—which is the commoner case—is practically the best under ordinary cases; is the compromise between the two risks, viz.: failure of vigorous and fertile posterity on one hand, and failure of immediate offspring on the other. Get fertilized, cross-fertilized if you can, close fertilized if you must—is nature's golden rule for flowers." We see that Dr. Gray no longer believes that nature "shuns the practice of self-fertilization," but practices it (and practices it extensively), when cross-fertilization fails.

Evolution in Plants.—Evolution, in some form, is generally accepted by scientific men. Dr. Hubert Airy, in Proc. Royal Society for January, 1873, believes that in phyllotaxis, or the leaf arrangement of plants, the one-two arrangement (the second leaf being opposite to the first), is the earliest in point of time, and that all the other forms are subsequent to this. Roots, he says are always two ranked, and monocotyledons have the first leaves one-two. In dicotyledons the first leaves have the simplest order of the whorled type.

Vegetation of Bermuda.—Five hundred species of plants have been found on the island. The Burmuda Red Cedar is the principal tree. The seeds are supposed to have been originally brought from America by the Cedar Wax-wing, a bird which makes the trip in twenty-four hours. The island is twenty-five miles long, and six hundred miles from Cape Hattaras. There is no brook or stream on the island, and no part is over two hundred and fifty feet above the level of the sea. The temperature is about 75° from May to November. The cool season is in February and March, when the temperature is about 50°, when the flowers are mostly found. There are no clouds, no rain, from July to September, and all is parched and bare. Part of the island has subsided far below the level of the sea. The trunks of old cedars are found in the marsh lands. It is during the cool season that the fine Potatoes are raised that find their way to Philadelphia markets in April.

Our Native Lilies.—In another place we give a note from a correspondent from California in regard to the varieties of the Lilies in that section. Our own eastern kinds vary also, and the varieties are well worth looking after. We have not had the chance of observing how much



the Lilium Philadelphicum, or L. Catesbæi vary, but L. superbum and L. Canadense have numbers of beautiful forms. We give an illustration of the Canadian Lily.

Fertilization in Beans.—At the October 3d meeting of the Philadelphia Academy of Natural Sciences last Summer, Mr. Meehan observed that in all the discussions on the injurious effects of close breeding in flowers, and the consequent theories of cross-fertilization, nearly all the arguments were drawn from structure. We are asked to note certain arrangements, and then to believe that certain results must follow. He preferred to watch the plants in their actions, and in the result of their actions, when excluded from external agencies, believing it the more practical way preferable to the theoretical one. One of his friends who thought he was wrong in limiting insect agency to a few plants, and in questioning the injury from vegetable close breeding, had been giving for some months past a series of articles in proof of his side—the more universal view. Of course the position of his friend was entitled to all the benefit to be derived from structural arrangement, but when he referred to actual behavior in plants, it came within the province he had marked out for himself. In the last paper there was an instance of this kind. After noting how the flowers of Phaseolus—the common bean—were formed, and the supposed impossibility of fertilization by its own pollen, the paragraph concludes as follows:—"The *machinery* tells its own story plainly. The con-

firmation is familiar to all who know beans and their facility of mixing, when different varieties are grown together." Mr. M. said he claimed to "know beans" for thirty years past: had grown large numbers of varieties side by side, saving seed from them and re-sowing, and had never known a single case of admixture from this close proximity. The various kinds of both Beans and Peas in cultivation were in all cases evolutions or as would be commonly said, "sports or accidents," or were the results of actual manipulations by skillful seed raisers. He had no hesitation in saying that his friend was utterly wrong in his impression of the fact—that *he* did not "know beans,"—and the fact that Beans would not intermix though so close together and so freely visited by bees, was an excellent argument against, instead of for, the universal insect cross-fertilization theory.

Evolution.—Now that it is generally accepted that plants (and animals) have been not all formed at once, but that new forms appear in successive periods according to law, there is the usual search for the author of the theory. Some go back to the time of Adam and show that even he was not made directly from nothing, but was evolved from clay—dust of the earth. But the more moderate do not go so far. The *Scientific American* thinks Goethe should have the credit:

"Goethe also proved that certain differences between the osseous systems of man and the lower mammalia, which had been insisted on before his time, did not exist in the embryos, and only appeared during and after growth.

"It is evident that what Goethe called metamorphosis, is identical with what we call evolution. Witness the following expression:—'The triumph of metamorphosis is shown when this theory teaches how simple organization begets families, how families split into races, and races into various types, with an infinity of individualities. Nature cannot rest, nor preserve what she produces, but her actions go on *ad infinitum*.'"

The Arnold Arboretum, of which Prof. Sargent is director, makes its annual report on the condition of the garden:

"One hundred and twenty-eight species of hardy trees and shrubs and many thousand specimens have been added to the Arnold Arboretum during the year. To relieve the over crowded nurseries, 3,181 young forest trees have been planted out on various portions of the Bussey Estate. The cost of planting these trees, including digging them from the nursery rows, and transporting them on an average half a mile, was $35.19, or one cent and one tenth for each tree.

"The unprecedented heat and drougth of the past Summer, have been most unfavorable to these plantations, and barely fifty per cent. of all the trees planted survive. As an experiment in sylviculture, the one and two year-old seedling trees, or about two-thirds of the whole were planted by what is known in Europe as the 'notch' system, that is, they were inserted in the intersection of two cuts made at right angles in the sod with a common garden spade, the ground having received no previous preparation. However successful and economical such a system may be in a humid climate like that of Scotland, it cannot be recommended for the United States, where a more careful preparation of the soil seems essential, that the young plants may resist the severe ordeal of our usually dry summers. For the larger specimens of these plantations, small holes requiring but a few moments' labor were made; and, as far as I have observed, not a single one of the trees so planted has yet suffered. Various experiments in forest culture will be continued on a small scale in the future, as plants accumulate, with a view of arriving at the best method for New England planters to adopt.

"The Trustees of the Massachusetts Society for Promoting Agriculture (the original founders of the Botanic Garden) have made me for the third time a generous annual grant of $1,500, for the improvement and development of the Garden; and it is my duty to call attention to the fact that their sustained liberality has alone made possible the increased activity and usefulness of this department of the University."

Potatoe Moth.—This insect continues to be fearfully destructive in Algeria. The larvæ bore into the tubers, and the excrements are so nauseous that no animal will touch a tuber containing them. Boisduval calls it Bryotropha solanella.

QUERIES.

Singular Analogy in Darlingtonia and Sarracenia.—At p. 293, Vol. 16 of the *Gardener's Monthly*, Mr. Canby gives an interesting account of Darlingtonia in connection with its insect

catching habits. We have now the following additional note on the subject:

"Since this article was written I have had an opportunity to examine some leaves of Sarracenia Psittacina, Michx. In their structure we may notice a near approach to Darlingtonia, the upper part of the pitcher being almost as in that plant. There is the same ventricose expanded summit, which, if the leaves were erect, would bring the orifice underneath, and the fold within the orifice is not only present, but proportionally many times larger. To be sure, the "fishtail" appendage of Darlingtonia is not found here. But that admirable arrangement for attracting flying insects is not necessary in this plant, which has its leaves reclining in a rosulate cluster in such fashion that the orifices are in a vertical instead of a horizontal position; thus presenting an open door for ambulatory insects, easy of entrance, but extremely difficult of exit. As a consequence, the prey corresponds to the structure, being composed principally of ants, with a proportion of the smaller spiders, beetles, &c. The hunter or fisher has often occasion to construct and use traps made on modifications of the same principle; but the arrangements of their mechanisms are poor and inefficient compared with those of these humble plants.

W. M. C."

The Purpose of Honeyed Secretions.—We have the following from a botanical friend: "'Honeyed secretions appear to be given to plants for the purpose of furnishing a nourishing liquid to pollen.' p. 27. May a correspondent ask what kind of proof there is for this? Also, how the pollen gets at this secretion in the spurs of Aquilegia, or of an Orchis, or in a Crown Imperial, or, indeed, in any other flower?

"Also, why should the moisture of the stigma be called 'a honeyed secretion,' and so be likened to the nectar of flowers? And how does the remark that the pollen-tube is emitted only when there is a honeyed secretion in the stigma, apply in Asclepias, and in those cleistogamous flowers in which the pollen emits its tube before touching the stigma?"

[The quotation from our last number given above, is in answer to a question of a correspondent who wants to experiment on horticultural topics in matters not fully proved. When we suggested this subject as one of them, therefore, we regarded it as a matter not fully proved, but only "appears" to be so.

Our ground for this suggestion is the experiments of Dr. Hooibreuk, of the Imperial Botanical Garden of Vienna, published in 1873. He shows that flowers which could not be fertilized by their own pollen, or foreign pollen, were successfully impregnated when nectar was applied to the stigma before the application of the pollen.

Our correspondent is one of those who endorse Sir John Lubbock's statement, that "the honey of flowers has been developed by the unconscious agency of insects," in other words, that sweet secretions were made expressly to entice insects, which, while visiting, should bring pollen at the same time to cross-fertilize, and he will naturally feel a reluctance to accept the suggestion that possibly the nectar may in some way directly minister to the plant's own good; but those who differ with him may be pardoned for seeking another use for these secretions.

As to the objections made, we can only say they are no greater than surround every similar question; no greater in this than is the fact of the existence of cleistogamous flowers from his own point of view; for if nature abhors self-fertilization, why should she make such flowers which, "blooming in secret," must fertilize themselves! The sweet liquid in the *spurs* of Aquilegia may be *waste*, as millions on millions of pollen grains themselves are waste. Again, the honeyed matter is generally formed in close vicinity to the gynœicum, and there may be cases where the pollen-tubes can get along for awhile without it; but all this is speculation, and we can only say that there seems enough in Hooibreuk's observations to warrant further experiments in that direction.—Ed. G. M.]

Climate of California.—A San Francisco correspondent, under date of December 28th, says:—"I see by the papers that you have had very cold weather in the Eastern States. Here it has been very delightful. Yesterday, for instance, the thermometer at noon stood at 72°, and for many weeks it has ranged between 65° and 74°—occasionally with a light frost at night, but not strong enough to 'nip' tomato vines, or interfere with the out-door growth of flowers. The day but one before Christmas I took my children down to see the sights, and the display of flowers and fruits in the markets was very fine—all of out-door growth. Strawberries, grapes, oranges and lemons lay side by side with apples, pears, &c., &c., in great variety.

On Christmas day the floral, as well as the evergreen display in the churches, was a pleasing sight for such a season of the year. We are all longing, however, for rain; and that is the commencement of winter here. Two months

ago we had a good general rain throughout the State, and that gave vegetation an excellent start, so that all the hills around our city have a look like Spring. Indeed, we have two Spring seasons in San Francisco—that which comes after the first good rain, and that which follows the close of the rainy season.

Looking upon the brown hills around us before the rain, and then after it, the change is like magic. Sometimes the range of hills on the eastern side of our beautiful bay becomes swept by flame, and as the lurid glare leaps and climbs, one would think that desolation, utter and irredeemable, would be the result. But no! These hills have a fine growth of wild oats, which are perpetuated most singularly, in this way: The surface of the earth, after the summer's drouth, becomes cracked by the sun (being of a clayey loam), and as the wild oat has two 'legs,' the moisture of the night contracts, or raises, rather, these legs, and the warmth of the day straightens them; the sharp point to each sticks into the ground, and the straightening process naturally, then, forces the body of the oat forward. This is repeated night by night, and day by day, until it creeps to one of the sun-cracks, and falls into it. These, after the first rain, 'stool' out, and a beautifully patterned carpet, the shape of the cracks, becomes at once visible. As the growth continues, the hills become covered with green. This is our first Spring.

Mushrooms will soon be come abundant on the grassy slopes west of the bay."

Arundo conspicua.—H. M. N., Chattanooga, Tenn., asks:—"What is the Arundo conspicua, referred to in the February number of the *Gardener's Monthly*, 1874? Is it known by any other name?"

[The extract was credited to the *Gardener's Chronicle*, and the plant said to have merits superior to Pampas Grass. It ought to be in this country by this time, but we see it in no lists. All we can say in addition to what the *Chronicle* said, is that it is more correctly Calamagrostis conspicua, and is a native of New Zealand.—Ed. G. M.]

California Lilies.—A correspondent justly complains of "the outrage being deliberately committed by the collectors of our native lilies; they are sending them all over the East and Europe, with half a dozen different names for one lily. There are only half a dozen varieties of lilies on this coast, but there are lilies sent out with over twenty names. A collector will write a wonderful description to a dealer about a new lily, and to another about another, giving any name he may chance to come across, and supply both out of the same case. If asked why they do this, they will answer you, 'That it is no difference; the lilies are new, and people would as soon have them under one name as another.'"

Name of Plant.—L. H. C., Buffalo, N. Y. The thorny plant is Pereskia aculeata, a plant of the cactus family, though apparently so different—and the kind used by English florists to graft Epiphyllum truncatum on. Another species, with much more fleshy stems, in cultivation, is Pereskia Bleo.

Like Producing Like.—M. B. S., Bloomfield, Iowa, writes:—"In the pictures of beautiful Pansies in Mr. Henderson's advertisement, I see he speaks of varieties by numbers. I always supposed that when you sowed a package of seeds, you had all sorts of colors. Is it customary for these varieties to reproduce in this way?"

[Careful selection and care will enable a variety to reproduce with tolerable certainty. The old idea that a species would reproduce itself with tolerable accuracy, and a variety would not, is proved now to be erroneous. Any garden variety reproduces nearly as well as a species.—Ed. G. M.]

Literature, Travels & Personal Notes.

COMMUNICATIONS.

HORTICULTURAL PROTECTION.

BY W. H. W., READING, MASS.

In the editorial comments appended to the article on "Grapes at Boston," in the *Gardener's Monthly* for December last. I am asked to "give the points of novelty claimed for the Secretary grape in such language that a Patent-office clerk could tell at once whether any other grapist was infringing on the rights of the Secretary." I am not sufficiently familiar with this

grape to attempt to comply. I have seen, eaten and greatly admired it, but I have never studied it. I have not even fruited it, though I hope to do so the coming season. I have no interest in it whatever, save as I am interested in every new fruit that promises to be an improvement upon what we have hitherto had, and so a promoter of the public welfare and enjoyment.

Dropping, therefore, all farther reference to this or any other particular variety, I will, with your permission, give some reasons for the view expressed in the article referred to, on the subject of "Horticultural Protection." By this phrase I mean the protection by law of the originator's right to a new fruit, as our patent laws now protect an inventor's right to a new implement.

What is the design of the whole system of patent laws?—It is to secure to inventors such a compensation for their time, labor and expense in making valuable improvements in machinery, &c., as will encourage others to use their abilities and energies in the same direction. Thus the public welfare and happiness (at the maintenance or promotion of which all legislation ought to aim) are advanced by constant improvements in the arts.

Why should the same principle apply to horticultural improvements as to mechanical, or rather we may ask, *Why should it not?*—The burden of proof does not rest upon the *advocates*, but upon the *opponents* of "horticultural protection." If (as is generally admitted) the principle upon which all patent laws are based is sound, then why should that principle be restricted in its aplication to mechanical improvements? That is a question which the opponents of horticultural protection are bound satisfactorily to answer. If the public good is as truly promoted by the production of such a grape as the Concord, or of such a potato as the Early Rose, as it is by the invention of a new toy; then why should our laws give to the inventor of the toy such a a patent as secures him an abundant compensation, and at the same time refuse to give Mr. Bull or Mr. Bresee any protection at all? There is the pivot on which this whole question turns. It is a question of justice and right. The originator of a new and valuable *fruit* has a *right* to the same treatment from the government which it gives to the inventor of a new machine. If he has, then the *principle of horticultural protection is right.* If he has not, then it is incumbent upon those who say so to show why he has not. I am aware of the answer that will be made to this, that "if the principle is right, yet the appliation of it is impracticable. The attempt, it is claimed, would be met at once with so many and so serious difficulties that it would be unwise to make it."

The length of this article forbids my attempting to state and answer the objections that are urged by the opponents of horticultural protection. But if the Editor of the *Gardener's Monthly* will state them as clearly and briefly as possible, I will consider them in another article, and endeavor to show that they furnish no adequate reason for refusing to apply to horticultural improvements the same patent-law principle which is now applied to mechanical.

[We doubt that our meaning has been made plain to our correspondent. We do not want any articles on the *justice* of protection. All that is granted. Of course if anybody denied that the principle of protection should be applied to horticultural improvement, the "burden of proof," would be on them. But it is not denied.

The reason given by our correspondent for not attempting a patent-office description of the Secretary is, that he is not sufficiently familiar with it. Then let him try the Concord. It will serve our purpose just as well.

What are the especial points in the Concord not possessed by any other grape, for which Mr. Bull is to claim a patent right? and so expressed as to satisfy the Patent Office clerk, who knows nothing of fruits, but something of language, that some one was infringing on Mr. Bull's rights? Mr. Main might, for instance, claim a patent for the "Main Grape," and the clerk would have to refer to his books to decide. The exact wording might not be quite the same. The clerk might give Mr. Main a "patent," and what is the result? "Briefly," and we hope "clearly," we say that language nor drawings can clearly convey to a Patent Office clerk the special points of novelty in any new fruit.—Ed. G. M.]

LAND AND GAME BIRDS OF NEW ENGLAND.

By H. D. Minot. Published by the Naturalists' Agency, Salem, Mass.

BY T. G. G.

A careful examination of Mr. Minot's book on birds, convinces me that the author has spared no pains to bring before the public a highly useful, as well as entertaining and instructive vol-

ume. In view of the many expensive works which have been published on ornithology, not even excepting the latest additions to the science, a book so cheap, and so replete with details, both of structure and habit, cannot fail to awaken attention, and receive a cordial welcome.

That a work of this character was badly needed, particularly in New England, cannot be denied, since Samuel's work, which has already passed through several editions unimproved, has outgrown its usefulness. To write the bird-history of New England anew, has been left to the ready pen of our author. In this task he has succeeded nobly. With a mind well-stored with the most interesting particulars of bird-life—the results of patient and persevering study—he undertook this labor, which is certainly much in advance of anything that has come from that quarter. His language is simple and precise, with enough of imagery to make it pleasing.

In many places he bears indubitable testimony to the accuracy of former observations. Where he differs from earlier writers, which he sometimes does, it is with no intention of undervaluing their labors, but with a noble purpose of placing upon record the few truths which he has been able to glean from nature, as seen from his standpoint of observation.

The study of systematic ornithology certainly owes to Mr. Minot a deep debt of gratitude, for the valuable keys which he has appended to the work. The ornithological key will be found an indispensable aid to the tyro in this department of science, who will be able to identify by its help, particular species of *aves*, with considerable ease, and at a great saving of time. The oological key will be best appreciated by those who are not so scientific, and whose tastes are more concentred upon the beautiful in nature.

The chapter devoted to the history of our "Game Birds," will be especially valuable to the sportsman, who will find in the small space devoted to their history, all that is necessary to be known.

I could not suffer this opportunity to pass without saying a few words commendatory of the general appearance of the book. For neatness of arrangement and excellence of typography, it cannot be surpassed. Its enterprising publishers are deserving of unstinted praise for their part of the work. I hope it will meet with a sale commensurate with the wishes of both author and publisher.

RECOLLECTIONS OF AUSTRALIA.

BY WM. T. HARDING, COLUMBUS, OHIO.

How frequently circumstantial incidents occur, which remind us of events, happy or otherwise, gone by. As an instance, the following remarks will suffice to verify the assertion. While "in meditative mood," the rustling leaves above, reminded me of an episode in the life of Matthew Flinders. I had passed the night beneath the boughs of a noble specimen of Flindersia Australis; so named in compliment to that brave old navigator. The tree is better known among the colonial carpenters and cabinet-makers as Australian mahogany. The wood takes a high polish, and is useful for many purposes. But the special interest then connected with the tree, was from the recollections it awoke in memory of the sad history of the intrepid Flinders, who, accompanied by the famous botanist and naturalist, Robert Brown, circumnavigated New Holland in the year 1810.

Although we resumed our journey at an early hour, we appeared to make but little progress. My fellow-traveler was less cheerful than usual, and from some cause or other, lingered behind. He seemed a sadder man, if not a wiser one, than he was the day before. Our way through the forest lay beyond a lofty ridge which stretched widely before us. The ascent was very fatiguing, and difficult, but, when we reached the top, I at least, felt well rewarded for my pains. One of the wildest, most rugged, and ultra-romantic scenes I ever saw was before me.

Looking down the precipice, I beheld such a rockery as few mortals have seen. The rugged summit was fringed with Flindersias and the singular Hakea trifurcata, Araucaria Cunninghamia, Agnostus sinuatus, and the plume-like Acacia lophantha, A. spectabilis, and A. pulchella. The wierd-like Melaleucas of several kinds, the strangely formed Spermaxyron stricta, Ficus aspera, Eriocaulon Australis, Cycus angustata, Zanthoxylum Australis; and the ornamental Elæodendron Australe, Angophora cordifolia, Croton rosmarinifolia, and Buxus Australe. Winding round the trunks and embracing the branches, hung wreaths and garlands of the beautiful evergreen Billardiera parvifolia and B. mutabilis; the one spangled with blue, and the other with crimson florets. Wildly festooning in heavy drooping masses, were Hardenbergia Comptoniana—a pretty purple flower; Zichya sericia, scarlet; and Sollya heterophylla, blue.

We had left Mount Alexandria, some miles behind, and turning towards Lake Alexandria, intending to reach the coast, and from Rivoli Bay, embark for Port Adelaide, South Australia. We needed rest, my companion especially, who complained of indisposition. After a short nap, leaving him to sleep and recuperate, I started off to explore the valley. It seemed appalling to look down from the dizzy height to the yawning abyss below. It was deep enough to make a samphire gatherer giddy; and was as fearful to peer over as Shakespear's Cliff. Thinking of it now, I am reminded of the immense mountain rifts, or canyons, Mr. Meehan so graphically describes in former "Traveling Recollections." The declivity, as seen from the highest point, appeared to be of immeasurable depth—awful in its unfathomed profundity. Making a considerable detour through the bush, and following a kangaroo track, closely hedged on each side with the beautiful Epacris splendens, Correa speciosa, Boronia crenulata, Polygala grandis, Dillwynia clavica, and Eriostemon pulchellum, made an easy descent to the bottom of the chasm.

A herd of sleek kangaroos were quietly grazing among the rich and luxuriant herbage which covered the deep alluvial valley. As I watched the pranks and laughed at the gambols of the young ones romping and frisking about like playful kittens, I was startled with an immense diamond snake. The devilish stare of its evil eyes met mine, vis-a-vis. As if meditating mischief, the satanic fire of its terribly glaring orbs completely unnerved me for the moment. The malignant monster, partly uncoiling its loathsome carcass,and elevating its head some six feet high, stood at bay before me. Taking aim, as deliberately as my shaky condition would allow, I fired a heavy charge of swan-shot at "the enemy of mankind," and destroyed "the evil one." The unusual sound of my gun alarmed the timid creatures, who bounded off at a tremendous pace, along the valley. In their first moments of fright the older animals stampeded away, forgetting the little ones, who pitifully bleating, did their best to keep up with them. Immediately after, crushing through the bushes with true maternal affection, the does returned to protect their young, who then scampered off together. The flying leap of a full grown kangaroo when pursued, will often measure from twenty to twenty-six feet. Perched among the fronds of a Seaforthia elegans, in singular contrast to the serpent beneath, was a flock of the lovely Wonga-Wonga Pigeons, (Leucosarica picata,) and the graceful Crested Dove, (Ocephaps lophotes.) There are upwards of twenty species of the pigeon tribe, indigenous to Australia, all of which are exceedingly beautiful. The Avifauna of the antipodes are truly magnificent, and like the Flora, are marvels of beauty, as they flit among the flowers and disport their gay plumage in the trees, and while thus pleasantly engaging our attention, greatly excite our admiration. As I am unable to do justice to them in my sketches, I will confine my remarks chiefly to vegetable life; with which I am more familiar. Not that I love them any the less, but my *forte*, as I previously stated, is horticulture.

It is not unusual for the observant traveler when forcing his way through the fastnesses of the primeval forest, to meet with remarkable instances of plant growth. Many are exceedingly beautiful, both in form, foliage and flower; while others are singular oddities, if not marvels; they are curious and interesting. So anomalous, or paradoxical are some species, as to excite surprise when we see them, while we pause and ponder. The writer has frequently alluded to their peculiarities when describing Antipodean scenes. Vegetative types, much resembling their congeners of the fossil flora, are comparatively common to Australia, and afford subjects of comment to speculative minds.

When meditating on the long-ago, or pre-historic times, a simple looker-on, often feels confused when he sees the relics or remains of that remote period before him. Thus perplexed, he naturally asks the geologist for information, whose comprehensive mind and searching eye, reads in the fossilized book of nature, "Sermons in stones," and in the earth's foundations reviews the chronicles of the past. While referring to the unnumbered cycles which have gone by in the rounds of time, and which probably exceed millions of years, he points to the ancient petrified forms of a past flora, and compares the kindred species of that era with existing alliances of this. The erudite paleontologist, familiar with the science of botany, readily deciphers the fossil paleograph, so indelibly engraved and beautifully embossed on the carboniferous tablets, and recognizes in their structural impressions, similar ligneous and herbaceous characteristics of the present flora. To wit: the Araucaria, Dammara, Cunninghamia, Casuarina, Phyllocladus, Xanthorrhœa, Cycas, Zamia, Macrozamia, Bambusa, Palm, Dracæna, Pandanus, Cordyline, &c., with

many species of ferns, lofty and lowly, which flourished then as now.

EDITORIAL NOTES.

HORTICULTURE AT THE CENTENNIAL.—In summing up the events of the year, the *Gardener's Chronicle* has the following appreciative notice of the horticulture at the Centennial:

"America has scored a veritable triumph in the Philadelphia Exhibition, though horticulture was, as might have been anticipated, not so well represented as it is generally in older countries. Fairmount Park, the locality in which the Exhibition was held, is, like most American things, large, and though it owes comparatively little to art, yet in its glades and dells many a wild flower, such as the pretty Houstonia cœrulea, was destined not to blush unseen or waste its sweetness on the desert air, for nearly 10,000,000 of visitors attended the Exhibition.

"The Horticultural Hall, of which we gave illustrations, was, like most other structures for plants designed by architects, ill-suited to its purpose. But it is intended as a permanent structure, and by a little remodelling, as we are informed, it can be converted from a place wherein to kill plants to one wherein they will grow, provided the remodelling be done by some one who knows and appreciates the fact that plants need light and air. Some of the leading American nurserymen, among whom we may mention Henderson, Such, Meehan, Hoopes, Parsons, and Miller of San Francisco, made displays which would have done credit to any exhibition; while the pomological exhibition was on a scale not yet attempted here, and carried out in a more instructive manner than we have yet attained to. The pluck and enterprise of our own nurserymen was equal to the occasion. Mr. Waterer did not shrink from shipping 'American plants' to America, to show the good use which Britons have made of the talents entrusted to their care. Mr. Williams heeded not the risks of the long journey and the trying climate, but boldly sent a large and select set of stove and greenhouse plants. Messrs. Veitch likewise contributed their quota, so that Great Britain was as well represented as the distance would allow. Among Continental nurserymen, Verdier, of Paris, showed Gladioli and roses; Sisley, of Lyons, double Pelargoniums; Leroy, fruit trees; Krelage, of Haarlem, bulbous plants. On all sides we hear acknowledgements of the courtesy and hospitality shown to 'Britishers' by their American cousins, and if the Exhibition has the result of making the peoples of two of the great Anglo-Saxon nations more appreciative of one another's good qualities, and less disposed to pick holes in what is amiss, great good will have been done. To the Americans themselves great benefits will, we believe, accrue, as tens of thousands saw, says an American friend, for the first time in their lives anything like effective gardening."

LOSS OF A SUBSCRIBER.—A lady from South Carolina sends the publisher a letter, asking to have her subscription to the magazine discontinued. She speaks kindly of the work, and expresses regret at parting with it, but feels "that as politics are now, they will soon want all their money for other purposes than horticultural magazines." We were sorry to see such a letter, especially from a lady, as we look on gardening as the best possible relief from political excitement, whether at the North or South.

During the rebellion the writer of this was on one of the heaviest battle fields of the war, not many days after the action. In one part of the field retreat had been hasty, and the dead but imperfectly buried. A hastily written line on a small stick indicated the resting place of "Sergeant Ragan, 3rd South Carolina Volunteers." In the haste the soldier's body from the breast downwards only had been covered. The eyeless skull, the flesh under the great heat almost disappearing, looked up as if for pity; but even in the short time that had elapsed, nature in mercy had made a flower to grow from out of the newly filled-in earth, and had nearly hidden the skull from sight. The little incident made a deep impression at the time. We gathered a few of the specimens—they were of *Acerates viridiflora*—to keep us in mind that there was nothing like flowers to cover up and to hide the horrors of war. As for politics we would not give up our love for flowers for a bushel of them.

THE WOES OF AN EDITOR.—Nothing worries an editor more than to have errors appear in his work; but it is the lot of all. Even after the most careful "book" reading there is often a whole page of "errata" at the end. Still, it is to the credit of magazine and newspaper work that

though necessarily hurried, errors are comparatively so few. We left a note with the printer about Pritchardia in our last, with no time for even the regular proof-reader to see it, supposing that one little paragraph might go unwatched, and it appears with "peteoles" and "spring teeth." Of course the reader knows what was really written and it is not worth while to make correction. But it was "maddening" for all. Then we took up the *American Naturalist*, and was told by the "printer" that *Thomasia* is a "Buttuereaceous plant; the *Bulletin of the Torrey Botanical Club*, where we read about "cambrinum," and a locality for "Asplenium pinnatifidim;" then there was the *Botanical Gazette*, with its reference to "Tritelia," and finally taking up *Silliman's Journal*, we found Prof. Gray made to say that Aster undulatus meant "many" leaved aster. We never felt before the soundness of the assertion, that "misery loves company."

Rambling Widow.—A correspondent of one of our English contemporaries pokes this conundrum at the Editor: "What is the Rambling Widow?" It is hard to solve these deep botanical problems, but as evolution is now a recognized law, and as a rambling widow has a good chance of turning up as a "Mourning Bride," we will venture to guess it is the garden Scabious.

Tea in Georgia.—The "Chinese Tea," said to be so successfully raised in Georgia, proves to be dried leaves of Sida spinosa, a sort of mallow. The way in which new "teas" are discovered, is to fish out a perfect leaf from the teapot of genuine Chinese tea, and then look about you for some wild leaf of the same size and shape, and you have American "Chinese" Tea!

A Large Plane Tree.—Perhaps the largest tree in Europe is a Plane tree near Cannosa, in Dalmatia. It is over thirty feet in circumference, three feet from the ground, and covers an area of 250 square feet.

Jonah's Gourd.—Mr. Leo Grindon is contributing a series of articles to the London *Gardener's Chronicle* on the classical history of certain plants. In a recent one of the series he shows that the Hebrew writer of the account of Jonah intended the castor oil plant—Ricinus communis—and not a gourd, as the plant that shaded Jonah.

Origin of the Leek.—Mr. J. G. Baker and Mr. Bentham, two distinguished English botanists, regard the Leek—Allium Porrum—as a cultivated form of Allium Ampeloprasum, a native of Switzerland and Eastern Europe.

The Eucalyptus in Mexico.—From the city of Mexico to Chapultepec, a distance of three miles, is a beautiful drive, lined on each side with old Eucalyptus trees. It is no new idea that the odor of the Eucalyptus is a febrifuge. The Latin races have always thought this of all odoriferous plants. The ancient Romans used to make plantations of the Sweet Bay—Laurus nobilis—for the same purpose. And indeed trees of any kind in swampy places have always been found advantageous to human health. The Dismal Swamp in Virginia is said to be free from the fevers which abound in open places.

The Woods' Vineyard at Camden.—This tract of one hundred and twelve acres, perhaps the largest vineyard in this part of the world, and planted in the "best" manner by Mr. Thos. Woods a few years ago, at the enormous cost of $55,000, has recently been sold by the sheriff, and brought $17,000.

The Horse Chestnut.—The native country of the Horse Chestnut (Æsculus Hippocastanum) has long been an enigma to botanists. The enigma has, however, been solved by Professor Orphanides, of Athens, who, according to a note in the French translation of Grisebach's *Végétation du Globe*, made by M. de Tchihatchef, has discovered the tree in a wild state in the mainland of Greece, thus confirming an opinion long ago expressed by Decaisne.—*Gardener's Chronicle.*

Memorial Trees.—The practice of planting memorial trees, is very common in England. A writer in the *Gardener's Chronicle* refers to trees planted at Inverary Castle to signalize visits of the owner's friends. Here are trees planted by the Marquis of Lansdowne, Earls Russell, Livingstone, Gladstone, Guthrie, Mr. John Bright, Dean Stanley, and others. Last year Queen Victoria planted a tree on the Lane estate, on the occasion of her visit there.

Building up Attractive Country Places.—The Boston, Lowell and Nashua R. R. has given free passes to seven rich citizens of Wilmington, Mass., because they built expensive houses. Those who built houses from $1,000 to $2,000 get a two-year pass, and those of over $2,500, a three-year pass, and will give similar passes to all who do likewise. Would it not be as well to

do a little in the same way for those who beautify grounds as well as build houses? Nothing is more an indicator of a man's prosperity than his exhibition of his love of art and taste. People do not want to live where other people are merely, but near *prosperous people*. Beautiful, well-kept gardens and grounds show that people are all right in this respect.

Hon. Marshall P. Wilder.—By a Boston paper we note that this good friend of every American horticulturist, for whose health we have all been so anxious, presided at the annual meeting of the New England Genealogical Society on the 3rd of January, and there made one of his usual eloquent addresses. This indicates that he is much more fully restored to health than his friends hoped for a little while ago.

Mr. Parker Earle.—We see it stated in the papers that this gentleman is engaged in strawberry planting in Southern Mississippi, in addition to his orcharding at Cobden, Ill. Mississippi is to be congratulated on having so intelligent and experienced a gentleman as Mr. Earle taking an active interest in her industries.

Report of the U. S. Department of Agriculture for 1875.—This strikes us as one of the best issues of the Department. It is one of great value, and if Mr. Watts had never done anything since his term of office than issue this volume, it would be worth all his Department has cost. The "Forest aspects" of the United States is particularly exhaustive, and proves what we have always contended, that the Department is quite competent to take care of this subject, without a "Department of Forestry" being independently created.

The Illustrated Annual Register of Rural Affairs for 1877. Albany: Luther Tucker & Son; price 30 cents.—For some years past "annuals" by newspapers have not been a success; but Tucker's is now in its twenty-third year, and prospers. It success is no wonder, for it is a marvel of interest for the price. The chapter on ventilation, alone, is worth more than the cost. It is the most complete and easily understandible paper on the subject that we ever read. The *Country Gentleman* is a good paper, and this "tender" to it does it credit.

Vick's Flower and Vegetable Garden.—This is primarily, of course, an assistant to the firm of "J. Vick, Rochester, N. Y.," but it is, in addition to this, an extremely useful and beautiful volume, very much more so, indeed, than many "regular" books on flowers issued by regular publishing houses.

The American Naturalist.—Now in its eleventh year, has always done much for science, and in the hands of the Houghtons, of Boston, is as actively useful as ever. The January number is now before us.

The Canada Farmer.—One of the very best members of the agricultural press, has been merged with the *Toronto Globe*. It has taken all its editors with it, and this is a guarantee that agriculture in Canada will not lose by the act.

The Raisers of the best Roses.—Mr. H. B. Ellwanger contributes to the *Journal of Horticulture* a list, with the names of raisers and dates of the introduction of some of the most popular. All but three English are French growers. No American seems distinguished in Roses. The list is as follows:

	Rose.	Age.	Raiser.
1	Alfred Colomb, H. P.	1865	... Lacharme
2	Catherine Mermet, T.	1869	... Guillot, fils
3	Charles Lefebvre, H. P.	1861	... Lacharme
4	Comtesse de Chabrillant, H. P.	1859	... Marest
5	Countess of Oxford, H. P.	1869	... Guillot, pere
6	Ferdinand de Lesseps, H. P.	1869	... E. Verdier
7	Francois Michelon, H. P.	1871	... Levet
8	Gloire de Dijon, T.	1853	... Jacotot
9	John Hopper, H. P.	1862	... Ward
10	La France, H. P.	1868	... Guillot, fils
11	Louis Van Houtte, H. P.	1869	... Lacharme
12	Madame Victor Verdier, H. P.	1863	... E. Verdier
13	Mdlle. Marie Rady, H. P.	1865	... Fontaine
14	Mdlle. Eugenie Verdier, H. P.	1869	... Guillot, fils
15	Marechal Niel, T.	1864	... Pradel
16	Marie Baumann, H. P.	1863	... Bauman
17	Marie Ducher, T.	1868	... Ducher
18	Marie Van Houtte, T.	1871	... Ducher
19	Marquise de Castellane, H. P.	1869	.. Pernet
20	Rubens, T.		
21	Abel Grand, H. P.	1865	... Damaizin
22	Anna de Diesbach, H. P.	1859	... Lacharme
23	Baron de Bonstetten, H. P.	1871	... Liabaud
24	Baronne de Rothschild, H. P.	1867	... Pernet
25	Belle Lyonnaise, T.	1869	... Levet
26	Caroline de Sansal, H. P.	1849	... Hippolyte Jamain?
27	Cloth of Gold, N.	1843	
28	Duke of Edinburgh, H. P.	1868	... Paul & Son
29	Edouard Morren, H. P.	1869	... Granger
30	General Jacqueminot, H. P.	1853	... Rousselet
31	General Washington, H. P.	1861	... Granger
32	Lamarque, N.		
33	Madame Bravy, T.		.. Guillot, pere
34	Madame Camille, T.	1871	... Guillot, fils
35	Madame Levet, T.	1869	... Levet
36	Madame Lacharme, H. P.	1873	... Lacharme
37	Madame Marie Finger, H. P.	1873	.. Rainbaud
38	Madame Noman, H. P.	1867	... Guillot pere
39	Madame Trifle, T.	1869	... Levet
40	Marguerite de St. Amand, H. P.	1864	... Sansal
41	Marechal Vaillant, H. P.	1861	.. Lecomte
42	Maurice Bernardin, H. P.	1861	... Granger
43	Paul Neron, H. P.	1869	... Levet
44	President Thiers, H. P.	1873	... Lacharme
45	Prince Camille de Rohan, H. P.	1861	... E. Verdier
46	S. Reynolds Hole, H. P.	1873	... Paul & Son
47	Senateur Vaisse, H. P.	1859	... Guillot, fils
48	Sombreuil, T.		... Robert & Moreau
49	Souvenir de la Malmaison, B.	1843	... Beluge
50	Victor Verdier, H. P.	1859	... Lacharme

THE

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DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

Edited by THOMAS MEEHAN.

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FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

There is nothing of more importance to be continually remembered than that lavish expenditure on one's grounds or gardens by no means signifies beauty and taste. There may be true art in the gardening on a lot of but a hundred feet, and none on a pretentious place of as many acres. We would particularly recommend at this season of the year a consultation of works on taste in landscape gardening with a view to improvement in this respect. Of these there are Downing, Kemp, and Scott, within the reach of every one. A study of these works will not necessarily lead to expense; indeed, rather the reverse, for most likely the result will be to show how expensive has been bad taste, and the good economy of true beauty.

As for expenditure, and the idea that gardening as an art induces waste, nothing is further from the fact. True art consists in the knowledge of harmonies, and this knowledge leads us to do the right thing at the right time. Out-door gardening especially is cheap,—nature does so much for us, and asks only the means to do it with, that costly gardening is rather a burlesque on her abilities.

There is scarcely a garden of any pretension that we know of, that could not be cut down in size, one-half, to great advantage. We know of some quite large gardens where several men are kept, as well as many where the owner does all his own garden work, in which everything is a drag. There is too much to do. No excellence can be achieved in anything. Everything is done out of season and hurriedly. No one can take any pride in anything. The owner worries at the cost, and instead of cutting down the work cuts down the hands, and the remaining worry and chafe, and things are still more cheerless than before. There is nothing in gardening like this, and the Baconian quotation that a "Garden is the purest of all human pleasures," never was intended to apply to such gardens. How cheap beauty is we have before referred to in connection with the grounds around the Centennial last year, to be repeated though with some diversity, on the same grounds, by the same hands this year; and we hope the good lesson will not be lost.

So far as the general hints applicable to the every year management of the flower garden department is concerned, the annual pruning must be got through with as soon as possible.

Many delay pruning shrubbery until after severe weather passes, so as to see what injury may be done, but with March all should be finished, taking care not to trim severely such shrubs as flower out of last year's wood, as for instance the Wiegelia; while such as flower from the Spring growth, as the Althæa, Mock Orange, &c., are benefitted by cutting back vigorously.

Do not transplant extensively till the ground is warm and the buds are about to push. Many things die by exposure to winds for a few weeks before they have warmth to push roots and leaves into growth.

The rule for pruning at transplanting is to cut

in proportion to apparent injury to roots. If not much the worse for removal, cut but little o the top away. Properly pruned, a good gardener will not have the worst case of a badly dug tree to die under his hands. In a nursery, where these matters are well understood, trees "never die."

Box edgings lay well now. Make the ground firm and level, plant deep, with tops not more than two inches above ground.

If flowers have been growing in the ground many years, new soil does wonders. Rich manure makes flowers grow, but they do not always flower well with vigorous growth. If new soil cannot be had, a wheelbarrow of manure to about every fifty square feet will be enough. If the garden earth looks gray or yellow, rotten leaves—quite rotten leaves—will improve it. If heavy, add sand. If very sandy, add salt—about half a pint to fifty square feet. If very black or rich from previous years' manurings use a little lime, about a pint, slacked, to fifty square feet.

If the garden be full of hardy perennial flowers, do not dig it, but use a fork, and that not deeply.

COMMUNICATIONS.

MOSAICULTURE.

BY G., NEW YORK.

In a recent number, you published some notes made lately by Monsieur Nardy on his route through France. They were very interesting in more senses than one. They show, the translation being evidently rather literal, with what native delicacy and also precision the French handle their language in talking about flowers; and they show how universal this style of gardening has become in France.

In the regular course of things we may now expect Mosaiculture to grow epidemic in this country. It is the case with all fashions and diseases, they must have their run. Take Eastlake furniture, take Japan and Chinese ware. What if the former looks as though hewn with a hatchet by a clever hatchetist, angular, and clumsy, and void of embellishment; what if the latter is positively ugly, according to all rules of ugliness, and an utter perversion of the teachings of Mother Nature; they are "the go" and the style, and the grumbling minority may grumble on until the fever has died out.

Here Mosaiculture has the advantage over Eastlake and Satsuma. It does not cost anything near as much, and the platebandes and arabesques will one day have disappeared, and the place where they stood will not know them any more, and no great damage done to the purse of the garden owners either.

Meantime let them come on, these alhambric designs, these architectonic figures, ribbons, scrolls, devices; let art teach nature how to bring about stupendous effects until she own herself beaten in her principles of simplicity, gracefulness, sparing contrasts, gentleness, delicacy and fitness which have heretofore distinguished her.

To the lovers of these effects I would suggest that there yet remains one great feature, which tickles mankind and has not yet been used—it is surprise. For instance, Mr. Nardy found befor the City Hall of Havre on the lawn, the words "City of Havre" in mosaics. Now why not improve upon it? Why not before the door of your country place have a live green mat with the name of the owner in mosaics? say, "Montague B. Smith." After all, even that is not new, as we have wool mats with "cave canem" or "welcome" on them. But it would be a surprise, nevertheless, such a rustic doorplate.

It may, however, take several years to bring out the highest degree of mosaiculture, viz., vegetable portraits. Human vanity though, may accelerate this otherwise slow and difficult evolution. To explain this art, let me state that from the massing of mosaics we may step down to mere lines, and from these violent contrasts to delicate shading. Take green—rather an appropriate color, this we possess in innumerable shades, from the glaucescent willow to the atrescent yew. The reader will excuse Latin, as there really would be no spice in our teachings without it; using common names would really not do; the reader would know the thing just as well as I do. Not only have we the green in its various shades, but we have every shade in its gradations from light to dark. And when we look close, we shall find we possess them all even in low growing plants. There, take the Ivies and just nothing else. I would undertake to find all the kinds of ivies necessary for a vegetable photograph. These found, find your subject. As I don't want to be personal, say the lately successful candidate for the Presidency. First we want an oval frame, spaded out of the lawn. Next we

sketch his profile, for we are not yet bold enough to attempt full faces. Little pegs we want to stake it out. Then we plant the dark kinds for the hair; the less dark for the skin; the lightest for the spots where we want the light to strike. Now we let them grow, thickly too. And now, in the charming month of May we come, carrying the shears like unto the pencil, and begin to cut the sketch. There! the worthy face gradually appears from under the biting shears, as the portrait does under the artist's brush. Our nice eye (or two of them) calculates growth and waits a week, and lo! and behold—it has grown into the very similitude of His Excellency, the head of our Government, and will please republicans and democrats alike, if it were done at the time I write.

Here, the inferior specimens of readers would think, ends our art, whilst the better ones know at once that here it but commences, for it is comparatively easy to make any figure out of vegetable material, but difficult to prevent growth to obliterate it. Hence the daily process of shaving, in this instance the President, every other morning and keeping up the likeness. If the portrait is that of the proprietor, the intelligent gardener has an easier task because he has the original and can pinch and shave to a nicety, —I mean not the original, but the counterfeit presentment in ivy—on daily comparisons.

For shirt collars we suggest Centaurea candidissima; for stiff whiskers, Pinus pumilio; for curly hair, Maidenhair ferns, or perhaps curled Parsley; for ladies' diamond broach, a head of dwarf Chicory salad; for why, as we go it, exclude from our vegetable workshops the salads, the cabbages and the vegetables, one and all, some of them more picturesque in their forms and shadings than their more aristocratic brethren in the shrub and flower line.

The reader will from these materials justly conclude that we work on a large scale; larger than life, say twice as large, and consequently twice as natural. The larger the scale, in fact, the easier the work. It may take a century before a gardening Meissonnier may appear.

But we must not stumble on this work of art, or perchance tread, though with unwilling foot, on the cherished face. How to avoid it? Why, let it be at the bottom of a hill, so that we can look down on it, and fenced in by a frame of Mosaics. Or, if your place is flat and offers no elevated point whatever, sink this picture a couple of feet or more, and look down upon it in that way. The larger it is, in the same ratio must it be sunk deeper, so that you stand higher above it, high enough to take it in.

And now let us from the unsteady waves of nonsense step once more on the firm shore of sense. The mosaics came to us from the land of Mr. Nardy, whose artists, in every branch of art, excel by their talent to invention and novelties, and consequently, also excel by running into extremes. The grotesque, the sensational, the indecent in French literature and art are but weeds in their fair garden of general good taste. So with floriculture. They have along with their fine inventions in the gardening line, invented mosaics. Now good taste abhors massing, abhors violent contrasts. No lady wants to dress loudly; to be loud is to be brassy, impudent, vulgar. Our mosaic gardens will reflect the souls of their conceited owners, male or female.

So let fashion progress, give her a lift as she passes, that she pass all the quicker, that the folly may fly faster and that we may all the sooner return to gardens of—American ladies and gentlemen.

NOTES ON RHODODENDRONS AND SOME EVERGREENS.

BY REV. HENRY WARD BEECHER, BROOKLYN, N. Y.

RHODODENDRONS.

It would be good news if we could confirm Mr. Parsons' statements, that the Rhododendron can be cultivated successfully in any good loamy soil. My experience has not confirmed his statements. For ten years past I have bought of the Messrs. Parsons fine plants of rhododendrons and planted them out at Peekskill. For a year or two they did well, then languished and died off. Several years ago I brought out from England several hundred, and set them in nursery rows without peat. They bloomed for two summers, but were fast failing. Two years ago, I prepared ground for them with abundant peat. They soon revived, and this summer they stood forth in perfect health and luxuriance. I now treat all my azaleas, rhododendrons, andromedas, &c., to a full soil of peat. Mr. Waterer last summer, on inspecting them, declared that nothing better could be done in England. I am satisfied that a full peat soil and mulching, both in Winter and Summer, but especially in Summer, is the true plan for satisfactory results in rearing rhododendrons. It is better to have a few fine and

flourishing, by taking necessary trouble and expense for peat, than to have cheaper culture and poorer plants.

RETINOSPORA.

I have proved all the kinds of retinosporas contained in the catalogues, in exposed position and without special protection, I have never lost one. With me they are as hardy as any plant out of doors, and are of all evergreens the finest for planting near the dwelling, and in small grounds. The filifera and the obtusa seem destined to rapid and large growth. The obtusa when well grown resembles Lawson's cypress and excels it, with the advantage of being perfectly hardy, which Lawson's is not.

THE PINUS EXCELSA.

Very beautiful, shrinks before our fierce summer sun, and after a few years, becomes dilapidated. But a comparatively new kind, P. ayacahuite, seems likely to equal it in its own line of beauty, and to be perfectly hardy, as well. It deserves to be extensively tried.

LILIUM PARVUM.

BY W. C. L. DREW, EL DORADO, CAL.

Lilium parvum was discovered by Kellogg some years ago, and has been offered to the flower loving public for several years.

It is a small lily, of upright growth, the stem growing from two to three feet high, and bearing from two to eight flowers.

The flowers are of a clear yellow color, spotted with dark red spots, the leaves are borne in whorls around the stem like those of Humboltii.

The parvum is of very easy culture, any good garden soil suiting it; the bulbs, though small should not be planted less than six inches deep; fresh manure should not be placed in contact with the bulb.

THE LARGEST UMBRELLA PINE.

BY F. W. KELSEY, ROCHESTER, N. Y.

Regarding the urging of the Editor of the *Gardener's Monthly* in December number as to the largest specimen of the rare evergreen Sciadopytis verticillata, would say that having made some inquiries for the plant in different sections of the country, the largest I have been able to find are two specimens formerly owned by Mr. C. M. Hovey, of Boston. One of them having been sold to Mr. Charles A. Dana, of New York, quite recently. The other I believe is still retained by Mr. Hovey, who can give you a more complete description of the plant. I believe the one sold to Mr. Dana was about 3 feet. The price was $25, which was not considered unreasonable.

I am in correspondence now with more parties, in Europe, in regard to specimen plants of this fine tree, and in the event of my getting any information of general interest will advise.

[We give thanks to our correspondent, and should be glad to know where the largest specimens of any rare trees are to be found.—Ed. G. M.]

EDITORIAL NOTES.

FROST AND HARDINESS.—We have all in America learned the lesson that it is not the degree of temperature merely that kills plants. Conditions alter the figures. Some of these are given in the following paragraph which we find in the *Gardener's Chronicle:*

"A writer in the *Wiener Gartenfreund*, on 'The Importance of Gardens for Acclimatization,' gives some interesting particulars respecting the hardiness of certain plants in Austria, especially in the neighborhood of Vienna. Pinus Cembra, which thrives in the botanic garden at Vienna. is killed by frost at the Imperial villa at Ischl, unless grafted upon P. Laricio, when it withstands the winter without injury. In the same place, on the other hand, such subjects as P. Nordmanniana, P. cilicica, P. cephalonica, Bambusa nigra and B. argenteo-striata are quite hardy. Quercus rubra and coccinea are very fine in the celebrated gardens of Duke Francis, of Anhalt-Dessau, at Worlitz. Some of them have trunks from 5 to 6 feet in diameter, and rise to a height of 60 to 70 feet. Wellingtonia gigantea is said to flourish in the vicinity of Warsaw, where there is often 45° of frost. Acer striatum will not succeed in Vienna on its own roots, but if grafted on A. Pseudo-Platanus it does very well. Cupressus Lawsoniana, Pinus Khutrow, and P. Pinsapo ripen seed in Bohemia. At Erlacstein, in Syria, in a loamy soil 800 feet above the sea, Paulownia imperialis, Aralia spinosa, Lagerstrœmia indica, Wistaria sinensis, Liquidambar styraciflua, and many others flourish under 30°—34° of frost, whereas Koelreuteria and Cercis siliquastrum perish."

THE GOLD-VEINED HONEYSUCKLE.—This, known to the English catalogues under the terrible name of Lonicera (caprifolium) brachybotrya aurea reticulata! is one of the most useful plants we have. It is well-known now, and is common in nurseries. It is not only a beautiful climber for delicate lattice work, but good use can be made of its color for bedding combinations. It makes a capital bordering for bed work. For vases and trellis work it is also admirable.

GENERAL WASHINGTON ROSE.—Mr. H. B. Ellwanger, of Rochester, regards this as one of the best Hybrid Perpetual Roses for that region.

AN EARLY FLOWERING CATALPA.—Mr. Suel Foster says there is a catalpa from Richmond, Indiana, perhaps the Teas' variety alluded to in our columns, heretofore, which is much hardier in Iowa than the common variety, and blooms ten to fourteen days before the other one.

GAILLARDIA AMBLYODON—*Nat. Ord* Compositæ —*Linn.*, Syngenesia Frustranea.—Flowers crimson. "A very handsome October-flowering annual, a native of sandy plains in Texas and New Mexico, where it blossoms from the beginning of Summer until the Winter's frost cuts it off. The genus to which it belongs inhabits both temperate North America and extra-tropical South America, and consists of about eight species. The present species was discovered by Berlandier in 1827, and collected subsequently by Lindheimer in 1844, and by Drummond in 1845."

LA FRANCE ROSE —Last year we noted the fact, that the leading English Rose-growers regarded La France as their best Hybrid Perpetual Rose. Another year has passed, and new ones have made their assault on the old favorite which, however, still "holds the fort."

TRITOMAS.—These beautiful half-hardy herbaceous plants—botanically perhaps more correct as Kniphofias—have had many new species added to the cultivated list, the past few years, but the oldest, T. uvaria, is still one of the most useful. It is planted in the Spring, but flowers from early Summer till frost.

THE COMMON SILK WEED—ASCLEPIAS CORNUTI. —In old times we used to know this as Asclepias syriaca, but we believe they are regarded now as distinct. They are alike enough however to make what is said of one concern the other, and this is what the *Journal of Horticulture* says:

"Asclepias syriaca appears to have been imported in 1629, but has not found much favor amongst us. In its native home it is said to be very odoriferous, charming the traveler when passing through the woods at eventide; it is also said that it is eaten as a vegetable by the inhabitants. The pods afford cotton, which the natives collect to fill their beds with. Parkinson says, on account of the silkiness of this cotton it bears the name of Virginian silk. Asclepias tuberosa is the most frequently met with in cultivation, but it is by no means a common plant. There are other kinds enumerated, and which are worthy of being added to collections of 'old and rare' plants."

We all recognize our old friend of our fields and fences by the above, but there is one point to Americans not noted in the above. To them the creeping roots in the Middle and Southern States are a worse nuisance than the Canada thistle in the North.

IVY.—In the garden, Ivy is more extensively used than formerly—the green free-growing kinds as edgings to walks; the closer growing kinds as coverings for banks, rockeries, and rooteries; and the choicer sorts for staircase, hall, corridor, and even conservatory decoration. For all these purposes Ivy is particularly worthy of being employed, while for covering low walls in almost all sorts of positions and with all aspects, a collection of the choice variegated kinds are extremely ornamental.

As pot plants for associating with groups of flowering plants, well-trained specimens of Ivy are not only amongst the finest, but are the most easily preserved and permanent of plants. How effective are pyramids of Ivy was strikingly exemplified at the great Show at South Kensington last year, when the nurserymen made the grand and spontaneous offering of the best of their collections, producing an exhibition which has not been equalled in London for many years. Fine as were all the collections then exhibited—rich, valuable, and rare as were many of the plants composing the groups—yet no bank was more strikingly ornamental and won higher encomiums of praise than the group of specimen Ivies associated with Lilium auratum from Mr. Turner of Slough.

Ivies in a small state are also admirable for the furnishing of window boxes, balconies, hanging baskets for indoors and out, and the variegated kinds for lively edgings of flower beds in Winter. The uses of this plant in its several varieties are so manifold that there is no wonder that the demand for plants is increasing year by year, and

very large supplies have to be provided to meet the ever-growing requirements for this now popular plant. I was so struck with the effect of the fine plants noted above that I obtained a few, and nothing in my garden has afforded me more pleasure than my collection of Ivies, and few plants are more admired by my friends and visitors. I have the satisfaction, too, of feeling that they are so safely established that no weather will injure them, but that they will improve year by year with a minimum share of attention being bestowed on them. Some sorts are slow growers, but that is an advantage for many purposes of decoration, admitting the plants to places where luxuriant growers would be quite unsuitable.—*Journal of Horticulture.*

LAURENTIA CARNOSULA.—Under this name the *Botanical Magazine* figures a pretty Californian annual, and gives the following account of it: "A very elegant little annual, native of muddy places in Sierra and Indian valleys in California, and thence, north-eastward, to Wyoming Territory (A. Gray). It is remarkable as being the only American example of the genus Laurentia, of which ten species are known, the rest being natives of South Africa and the Mediterranean region. The cultivated specimens differ widely from the native in habit and appearance, the native ones being shorter, with very succulent and indeed thickened stems, and having flowers not one-quarter the size of the cultivated ones. L. carnosula was raised from Californian seed by Mr. Thompson of Ipswich, who flowered the specimen here figured in July, 1875."

QUERIES.

PLANTING PYRACANTHA.—M. N., Asheville, N. C. We suppose the Dwarf Pyracantha, or "White berried" Pyracantha, would live in your district, though we have no direct knowledge of that fact. It is hard to transplant unless set deeper than before. Then it is very easy.

ORIGIN OF THE WEEPING YELLOW, OR "SLIPPERY" ELM.—F N., Pittsburg, Pa., writes:—Is this an English variety? Where did it originate? This is a variety of the American Ulmus fulva. Our impression is that the grafts were first distributed by Captain E. Beebe, formerly of Galena, Ill. We are not quite sure, but think we are indebted to that gentleman for our first knowledge of it.

EXOCHORDA GRANDIFLORA.—W. F., Newark, N. Y., says:—"I would like to ascertain what is Exochorda grandiflora, but I can find no description of it in the *Gardener's Monthly*, nor Loudon, nor any work I have."

[It is described in the first volume of the *Gardener's Monthly*, page 55. It was introduced by Fortune, from China, and was first thought to be a Spiræa and went sometimes as S. Fortuni and S. grandiflora. But Hooker saw distinctions in the fruit, and made a new genus—Exochorda—of it. It is one of the most beautiful white flowered shrubs of early Spring.—Ed. G. M.]

A BEAUTIFUL SPECIMEN OF EUONYMUS.—A correspondent from Amherst, Va., says:—"In the last number of the *Gardener's Monthly* is a note from the *Gardener's Chronicle*, where is mentioned the Euonymus bearing fruit. I have a large one, 9 or 10 feet high, that has borne seed profusely, and from which I have succeeded in raising some new varieties, one especially with a holly shaped leaf, which is very attractive."

[This is evidently Euonymus Japonica, the common evergreen Japan Burning Bush—but still a very good specimen and one of the choice little items that we like to read.—Ed. G. M.]

GREEN HOUSE AND HOUSE GARDENING.

SEASONABLE HINTS.

We must remember that gardening is not merely the growing of a pretty flower. We cannot have gardening without flowers, true, but the taste displayed in the arrangements and surroundings is what constitutes the fine art. A room or window full of flowers is a beautiful sight; but the pleasure is heightened tenfold when some taste is displayed in the arrangement.

Of late years this has been more fully recognized than it once was, and therefore plants with nothing but leaves to recommend them, are often as popular as those which bear flowers. We refer to this, here, because when any lists are given of plants for window culture, leaf plants merely are seldom seen therein. Palms and ferns deserve recognition as particularly useful for room work, as they will thrive in less sunlight than other plants; and for making tasteful masses they are almost indispensable. The usually graceful forms set off other heavier things to great advantage. Let any one take, for instance, the heavier leaved Begonias of the old "Rex" type as in the above illustration, and no matter how they may be massed or arranged, they will not look well unless some very artificial pieces of furniture are arranged or



BEGONIA REX.

grouped around them. But if a few palms or ferns be introduced into the company, the result is very different, as the beauty of the Begonias is heightened, and the foliage plants are still more brightened. For the purpose of comparison, as the reader goes along, we give an illustration of one of the pinnated South American Palms, Chamædorea formosa, which we take from Mr. William Bull's excellent catalogue, and which will make our meaning plain.

There was a time when these plants were very expensive, especially to Americans, and few would think of them for window or room decoration; but thanks to the efforts of the many excellent florists of Boston, New York, Philadelphia and Baltimore principally, and of Mr. Geo.



CHAMÆDOREA FORMOSA.

Such, of South Amboy, particularly, many kinds have been brought within the reach of almost all.

Setting mere taste aside for the present, however, and returning to practical matters of detail, we may note the following as among some of the most pressing duties of the season among flowers.

Geraniums, Pelargoniums, Cinerarias and Chinese Primroses must be kept as near the glass and light as possible; they do little good in shady places. Keep off the green Aphis—for this on a small scale there is nothing like hot water; on a large scale, tobacco smoke in several successive light doses is still the best remedy.

Fuchsias may now be readily struck from the young growth from the old plants, which will make excellent blooming plants for the next summer season.

Chrysanthemums should now be raised from cuttings for Fall flowering. They make better blooming plants than off-sets.

Auriculas, Carnations, Pinks and Polyanthus—the prettiest of florists' flowers—must be kept cool, just free from frost, with plenty of air if the best results are desired.

Pansies are coming now into flower. They like an airy frame, where they will not be roasted at mid-day, nor exposed to drying winds, and yet have a free circulation of air and plenty of light. Planted out in such a frame, and the old shoots cut away as soon as the plant has done flowering, the plants will keep healthy over till the next season. Superior varieties can be raised from seed. Choose those with the roundest petals, best colors, and the first flowers that open, to raise seed from.

New Holland and Cape plants, such as Epacris, Acacia, Heaths, etc., are now the glory of the greenhouse; hot bursts of sun on them should be avoided, as it lays in them the seeds of "consumption," which frequently carries them off the following summer.

Azaleas succeed well by grafting with the half ripe shoots of the present season's growth on plants raised either by seeds or cuttings. Old wood does not take readily.

Camellias will require rather more water while growing than at other times. Just before they grow, is a good season to graft. Cut down the stock, cleft graft in the crown, wax, and plunge in a bottom heat of 70°. A great many kinds may be had on one plant by the bottle system, practiced by the writer's father, thirty years ago. A shoot about to grow is obtained and attached to the stock as in inarching, the end of the shoot being put in a small phial of water suspended beneath it. This plan does best, however, with the young wood in July.

Look out for a good stock of bedding plants in time; by striking cuttings of such things as grow rapidly and speedily, and sowing seeds of such annuals as may be advanced to advantage.

Dahlias should now be brought forward. A good plan is to shorten the extremity of the roots, put them in six inch pots and place in a warm greenhouse. In a few weeks they will sprout, when they should be shaken out, divided with a piece of root to each sprout and separately potted in 4-inch pots.

COMMUNICATIONS.

LA BELLE CARNATION.

BY E. LONDSDALE, GERMANTOWN, PA.

When looking over an old *Monthly* (January, 1875,) recently, I fell across the following, which is from the pen of Mr. Chitty, of the Bellevue Nursery Company:—"I am delighted with La Belle; it produces more than twice as many flowers as Degraw in a given space. I am trying to get up a stock of about 20,000 for my own planting indoors for next Winter's flowering. It requires more head room than Degraw, but I intend building a house specially for it. I am perfectly satisfied it is the best thing in the way of a white winter flowering Carnation in the market."

As a difference of opinion exists about La Belle for the purpose claimed for it by Mr. C., it would doubtless interest numerous readers of the *Monthly*—myself among the number—to know what special treatment it requires to produce such results. Most of the florists I come in contact with are dissatisfied with it, the complaint being that it fails to flower freely. The flower itself is the best white we have; large and well filled up in the centre. For this reason it will never be entirely discarded; but to grow it to the exclusion of all other whites, I fear will never be, unless Mr. Chitty will favor us with the experience on which he based his judgment.

My own experience is that it requires to be rooted earlier, and not stopped or pinched back so late as is recommended for other varieties; but even then, when growing side by side with

Degraw, Edwardsii, La Purite, and Peerless, it fails to produce so many flowers as any of them. Does it require more heat? A prominent Carnation grower declares there is no difference between it and Degraw, but no two Carnations could be more distinct.

THE VERBENA.

BY J. W., TOLEDO, OHIO.

In the last number of the *Gardener's Monthly* I noticed several articles on Verbena culture, and the rust that affects it. Now, I think "the rust" is not a rust at all, but is the work of an insect, which can be seen with a good pocket lens; but in order to make it out clearly it needs a compound microscope of considerable power.

The said insect is of an oval shape, a little more tapering towards the head end. It is of a uniform glossy brown color, and about a hundred and fiftieth of an inch long. It has four pairs of legs, the two front pairs stand forward on the body close on each side of the snout or sucker, the snout being a little shorter than the front pair. The front legs are three or four jointed, with bristles at the joints, and terminate in four sharp claws, with a sucking disk, which enables the insect to run quite easily on the under side of a piece of clean glass. The two pairs behind, are inserted a little under the end of the body and pretty close together. They are longer and more slender than the fore legs; the last pair are quite slender and bristle-like, though they are jointed and terminate in a long bristle, instead of the claws and sucking disk.

The eggs can be seen glued to the leaf; they open like a clam to let the young escape, and remain adhering, looking very clear and silvery. The young insect is light colored at first, and appears to undergo some slight change in form. It has no eyes that I can discover, and I think is a true mite; and may add, mighty also in its numbers. It seems there is hardly any plant exempt from its attack. I believe it to be the cause of the dropping of Camellia flower buds; it can always be found in the loose petals and scales of that flower, when it drops. Then, when the flower buds are all gone, the insect falls back on the leaf buds, till they are all destroyed, and the plant dies. What florist is there who has not watched his handsome plants of Camellia or Azalias commence in that way, and gradually die, in spite of all his care, from no apparent cause but the blackening, hardening process going on in the buds?

As long as a plant is growing rapidly we do not see much effect; but let anything occur to check the growth of the plant (pot bound or drouth) and we soon see how quickly the disease gains upon it. No, I do not think the insect waits for sickly plants; on the contrary, the healthiest afford it the most nourishment, but the less vigorous soon become sickly when the insect once gains a footing.

There is in my greenhouse a large plant of Begonia Weltoniensis that has lost all its leaves except at the ends of the main branches, the strongest growing points. There it continues to produce leaves, and even flowers, but the lateral leaves all fall off, and the buds in the axils turn black. The plant is just able to sustain its life and growth at the strongest points. It illustrates well the struggle for life between the plants and its foes. This insect has different effects on different plants; those with leaves of a thin texture soon lose all their juices and become black and shrivelled, as in the Heliotrope and Verbena. Leaves of a thick, fleshy substance, as the Cyclamen, become twisted, distorted, and partially developed, perhaps only one lobe. The flowers, too, suffer in the same way, and show any form but the right one. A year ago my Cyclamens were so badly infested with this pest that there was not a perfect leaf on them. The plants were large, some of the roots three inches across; but I was in a mind once to throw the whole lot away. Towards Spring, however, I trimmed off every leaf and gave the roots a good washing with strong tobacco water. After a while the young leaves began to appear, when I frequently applied the same wash. Now, at the present time, they are looking pretty well and sending up plenty of bloom; but still there are traces of the insect in the deformity of some leaves. This insect seems to get so deep within the young buds, or buries itself in the soft pulp, and is further protected by the fine hairs to beset many kinds of leaves, that it is difficult to reach it with any kind of liquid intended to kill it. It is a low type of insect, perhaps with no regular breathing apparatus, or a very rudimentary one. It is not near so highly developed a creature as the green fly, or perhaps tobacco smoke would check it some. Red spider being some such thing as a mite, is able to resist any fumigation that it is safe to apply. The best

instrument for applying any kind of wash is the Bellows Syringe, sold by B. K. Bliss & Sons. It drives the liquid in such fine spray, and with force enough to penetrate the fine hairs and thoroughly wet the plant. I guess the best way to get rid of the insect is to discard every plant that shows signs of it. It is worth some sacrifice to be rid of this scourge.

IMPROVED SASH FOR THE HOT-BED.

BY B. F. LEEDS, PHILADA.

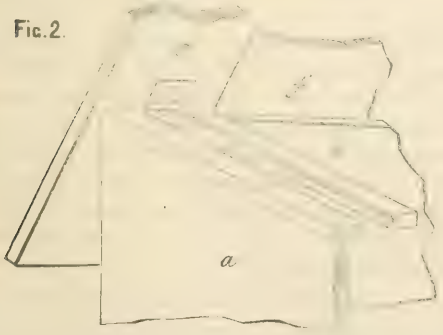
The improvement consists not in the sash itself, but in the attachments to it and the case below, the intention of which is to hold the sash tightly over the case, or in an oblique position at its back. The illustrations accompanying this article will help to show the manner in which this is accomplished.

Fig. 1.



Fig. 1. is a complete view of case of hot-bed, with grooved bars at either end and sliding boards, the angular tongue of latter fitting into the grooves mentioned, and to back of boards is attached the sash.

Fig. 2.



These details are shown more clearly in *Fig.* 2, which is an upper corner of the case broken away. An outer view of the side of the case is seen at *a*, and an inner view of its back at *b*; *c*, *c*, grooved bars crossing said end of case from front to back, and *d* is the sliding board tongued into, and moving freely between the bars *c*, *c*. The sash *e* (glass seen at *f*) is attached to this board by hinge shown, and can be kept at any angle desired by a block at back of the case.

The distance it would be necessary to move the sash back from the front before it tipped up to an oblique position would depend upon the extent to which it was weighted. A heavy weight on the rear or upper cross bar of the sash would raise it when projected back a distance of six or nine inches, or it could be left to tip up of its own weight.

The reader will easily see how the sliding board will act as a fastening to the sash in preventing it being blown off by the wind.

Fig. 3.

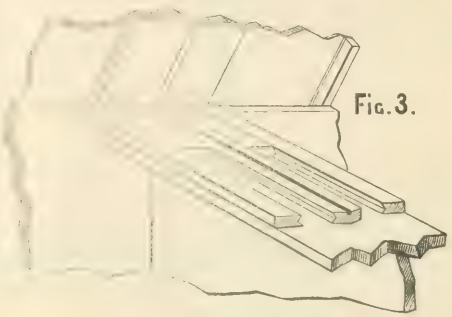


Fig. 3 shows the application of the idea to two adjoining cases. The ends of the two cases with glazing are seen, and two sets of grooves and sliding boards. In this instance I have placed the bars over a board, running in the same direction, and have made them fast to it. This would stiffen the bars and would lessen the necessary thickness of the outer ones.

Fig. 4.

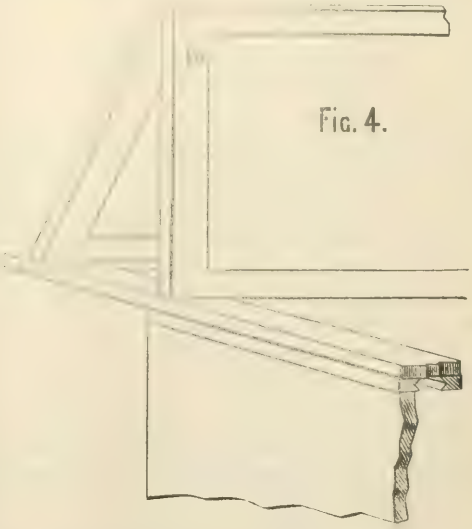


Fig. 4 shows a protector from direct sun's rays and extreme cold, in the shape of a double frame covered with muslin or matting and attached to the sash. This frame is furnished with a spring hinge (cost 20 cents per pair, of brass,) which would cause it, when the pressure of the thumb screw, shown enlarged in *Fig.* 5, was removed, to assume the position seen in drawing, or a still more acute-angular one. Of course, when the sash is tipped up it would be requisite to fasten the frame down upon the sash with the thumb screw, the slit for the passage of which is seen at *a*, *Fig.* 4.



There is nothing to prevent the sash being moved frontwards as well as backwards, so as to admit of ventilation at the extreme back and upper part of the case. An opening could be made at that point equal to a third of the width of the sash.

EDITORIAL NOTES.

Double Zonale "Wonderful."—Mr. Chitty, Bellevue Nursery, writes:—"I send by this mail a truss of double Zonale Pelargonium 'Wonderful' (Geo. Smith). The truss was cut from a plant in a five-inch pot, which has now nine other trusses remaining, equally as large and fine. The color is magnificent."

[We were glad to see specimens of this beautiful variety.—Ed. G. M.]

Double Cineraries.—The old Cineraria, always a favorite, has been produced in a double condition by European florists, and of this we are reminded now by beautiful colored plates from Haage & Schmidt, of Erfurt.

Waban Conservatories, Boston, Mass.—Enterprising florists at this time particularly, deserve all the encouragement the public can give them. We are pleased to learn that the firm whose name heads this paragraph is prospering. They deserve all the success they are achieving.

The Victoria Regia.—We do not know of any plant of this in the Union now, unless the one at Nashville is still alive; but by the following from the *California Horticulturist*, it may yet soon be seen in the "Golden State:"—"The public are commencing to show a lively taste for ponds and aquariums, and there are now found among our chief florists no less than twenty-five aquatic plants suitable as accessories to the ornamentation of grounds and rooms. We hope in a short time to see the Victoria Regia—the largest Water Lily in the world—a native of the river Amazon, grown here successfully in a suitable tank. One floral firm has already made the attempt, but the seeds were found defective. More, however, have been ordered."

QUERIES.

Ferneries.—F. M., Peterboro, Ontario, says:—"Aside from ferns, what other plants can be successfully grown in ferneries?"

[Begonias usually do well in ferneries, if there is some light. Indeed, the whole is a question of light. If there be little light we can have nothing but palms and ferns; but in proportion as there is light we can grow almost any of the soft wooded stove plants in them.—Ed. G. M.]

Roses.—Mr. Ottaway, Middleburg, Summit County, Ohio, says:—"I am pleased to see the rose question again. Our friend last month don't quite agree with Mr. Grey. After twenty years experience, I find the common span roof the best for amateur and novice. As for a practical man, he will adjust himself to either span roof or lean-to. The lean-to requires more attention than a span roof."

Sulphur for Red Spider.—G. M. R., Auburn, Maine, writes:—"Will you please state in the February number of the *Gardener's Monthly* the safest and most effectual way to use sulphur for the red spider, and also turpentine for scale in greenhouses, where a general collection of flowering plants are grown?"

[Put sulphur on tin or iron plates and set it in the sun under the plants. Turpentine is not as popular for scale as whale oil soap, or indeed,

any oily substance. This can be syringed. Turpentine has to be applied with a brush. Ed. G. M.]

NAME OF PLANT.—J. S., Wilmington, Del.—This is Iris Chinensis, or as recently stated in the *Gardener's Monthly*, now Moræa fimbriata.

NAMES OF PLANTS.—H. L., Danville, Va.—No. 1. Not an orchid, but Bryophyllum calycinum. No. 2. Heterocentron roseum. No. 3. Probably a Cistus, but should have a flower to decide.

FLOWERING OF CHINESE PRIMROSE.—H. L., Danville, Va., says:—"I should be glad to know if it is usual for the Chinese Primrose to flower in the same manner as the Japan Primrose, that is in whorls, one truss of flowers above another. I have a lot of the above raised from seed sown last Spring now in full bloom, pyramidally arranged, from deep rose to pure white. Foliage from natural green to very dark color, with flower stems nearly black. Not having seen the like before, hence my troubling you."

[It is not common, but they sometimes do. The double Chinese Primrose always does. There is a tendency in the whole family in this direction. The common yellow English Primrose generally has but single flowers on stems springing from the root; but occasional ones are seen with flowers from one common stem as the common form of Chinese Primrose, and there is no reason why under some peculiar circumstances even another whorl might not be produced.—Ed. G. M.

FRUIT AND VEGETABLE GARDENING.

SEASONABLE HINTS.

This is a busy season south of Pennsylvania in this department; here, we must wait till the end of the month, and northward, still later. The crops noted will, of course, be dependent on the arrival of the *season*, which is rather indicated by the ground becoming warm and dry, than by the almanac. It is very important to have crops early; as soon as the ground is therefore in good condition put in the seed. Possibly a cold rain might come and injure them, and you may lose and have to make a new sowing. Even so, it is but the loss of the seed and labor, while, if the seed do *not* die, the early crop will more than repay that risk.

In the hot-bed, Pepper, Egg plant, Tomato and Cucumbers may be sown, and in a cooler hot-bed frame Early York Cabbage, Cauliflowers and Celery. Those who have not got a hot-bed can sow a few pots or boxes, and keep them near the light in a warm room.

In the open air, peas and potatoes are about the first crop to be attended to; of the former, the varieties have now become so numerous that even "new grapes" will soon have to give way in that respect. Of new early Potatoes, we think Goodrich's Seedling is the best; the best older variety is perhaps, the Early White Sprout. Beets, the Early Six Week Turnip-rooted, is perhaps the earliest. Carrot, the Early Horn. Cucumber, the Early White Spine or Early Cluster. Lettuce, the Silesian, or Early Curled—to cut before heading; and the Early Butter left to head, are the first in season. Among the Radishes, the Old Short-top, and the Red and White Turnip are still ahead. Spinach, the Old Round-leaved; so that on the whole there has been little advance made on all early kinds of vegetables.

In addition to sowing of the above, Onions Leeks, Parsnips and Parsley must be sown at this season—not for the main crop, but to have a few in advance of the rest. To keep over the Winter almost all kinds of root crops become tough or coarse if sown too soon.

In the open ground Peas and Potatoes receive the first attention. Then Beets and Carrots. Then Lettuce, Radish, Spinach, Onions, Leeks and Parsley. Beyond this, unless in more favored latitudes than Pennsylvania, little can be done until the first week in April. There is nothing gained in working soil until it has become warm and dry.

In regard to fruits, our remarks last month will be generally in order.

COMMUNICATIONS.

NATURAL PEACH STONES.

BY E. S. NIXON, CHATTANOOGA, TENN.

I feel disposed to reply to B. F. Transon's article in November number, on the Wild Goose Plum; but as you have so frequently requested your correspondents to let the subject drop, I feel that it would be out of place; consequently I will pass it over unnoticed. He calls your attention to my answer to your inquiry for information as to the uniformity of size of the seeds of seedling peaches, as follows:—"We would also call your attention to the fact that it is not always the case that the largest peaches have the largest seed; for instance, the Heath Cling is a very large peach and has a very small seed—less than many peaches of not half the size." That is all very true and undisputed; but it does not follow that all large peaches have small seed, or that seeds of all seedling peaches are of a uniform size. And I repeat the statement, that the seeds of some seedlings are large and some small. In fact, I have seen seeds of some seedlings that were larger than the entire fruit of some others. But enough on that subject.

[The reason we were not disposed to continue the controversy about the "Wild Goose" Plum was, that there is no *true* Wild Goose Plum. There are many good wild plums under culture and many poor ones. We want to see a selection made over again of the best, with new names and new descriptions. Some of those under culture are about as fit to associate with Wild Goose as cranberry sauce; while kinds such as are grown by Hoopes, Bro. & Thomas; Hance & Son; and others, can well stand without any goose at all.—Ed. G. M.]

ON SOME OLD FRUITS.

BY T. T. LYON, PRESIDENT OF THE MICHIGAN STATE POMOLOGICAL SOCIETY.

In your remarks, on page 17 of the January number of the *Gardener's Monthly*, you speak of an impression that the Ribston Pippin is not adapted to America; and seem surprised at its appearance in fine condition at the Centennial. I take occasion from this to say that I have grown it in Michigan since 1850, and have found it uniformly fine and the tree highly satisfactory. It cannot, however, be set down as a heavy bearer; and it is my conviction that it is more at home at the extreme North. Its high, brisk flavor, also, is against its general popularity among Americans.

On the same page you also speak of the appearance of the Alexander, in many collections, at the Centennial; and characterize it as a "comparatively poor apple," planted rather for show. Please allow me to suggest that, while there may well be a doubt as to its relative profitableness, I know of no equal to it as a culinary sort, especially for pies or other similar purposes, for which it suffices without preliminary cooking, as its flesh will become sufficiently cooked in the process of baking the pies; while it is so acid that the requisite proportion of sugar will render it abundantly rich and sprightly. At a session of the American Pomological Society, held in your city, I think in 1862, I proposed that it be placed upon the rejected list; but I have since seen occasion to amend my views respecting it.

I may also indulge the statement respecting Hale's Early Peach, that it stands second to but few varieties here at the lake shore, where it is seldom seriously affected by "rot," and everything considered, is esteemed one of our most profitable sorts. The new early sorts—Amsden, Alexander, Louise, Rivers, &c., have not yet fruited here, although expected to do so the coming season.

PRUNING FULL GROWN FRUIT TREES.

BY GEN. W. H. NOBLE, BRIDGEPORT, CONN.

The portraits of such, both well and ill pruned, are found in our fruit books. Yet I do not remember any which details the right way and starting place in doing such work. You may fix in your eye the ideal picture laid down of a well pruned tree. But without sound sense and practice, you will find it no easy job to fashion a neglected, scraggy, tangled-up tree into that clean cut, shapely comeliness, fit for companionship in a perfect orchard. Yet that right method follows logically the need of sunlight, showers and air, to the best estate of both fruit and foliage.

The French say "*c'est le premier pas qui coute,*" which means in pruning, that to have such work well done, you must begin right. First, then, never start your job from the ground, or cut

first the lower limbs. Do not puzzle or torment your wits by gazing up into that maze of smothering, cross-riding, gnarled and tangled growths, but climb up through the centre of the tree to its top, stopping to cut out only those inward tending branches that block your way. As you go up, look studiously out on the work to follow. When you have reached the top, overlook its very scalp locks. Begin and cut away around the circuit of the head every limb that chafes and smothers its better neighbor beside or below. To give pathway to the sun and air, take out any under limb that crowding upward or starting from the same foothold, worries its fellow with the clutter of dense shade or rubbing in the wind. As you thus, step by step, make the circuit of its crown, a keener and larger sense will come to you of just what is to be done on your tree to leaf and bough, to insure you healthy and useful growth, and perfect fruit.

Next, go down to the second plot of limbs from top—not that they grow like pines in regular tiers, but for the purpose of your work you may so regard them. Thus you will finish as you go downward the whole circuit of each grade. In each you will perhaps find limbs which your work above has opened to the sunshine and the breeze, or which you found so placed and destined to remain. Don't worry over such, more than to rid them of anything molesting their independent growth; but everywhere cut away tangles, cross-riders, and all such limbs as disturb the vigorous outward stretch of others, or shut out light, or smother with heavy shade. Strive to leave each branch chosen to stay, in some sense, like a miniature tree, bending toward the open space by itself, and independently. Thus treated, your fruit trees will become a pride and pleasure, and most richly repay a work ofttimes seemingly harsh and puzzling. But if we began right pruning in the youth of our trees, and followed it up year by year, striving for a clean limbed, open head, we should never need to face the job which a long neglected tree presents. Pruning is needed, because a fruit tree is not grown for fuel or timber, but simply for the healthful luscious product of its fruit.

THE TOMATO SEASON PROLONGED.

BY H. W. RAVENEL, AIKEN, S. C.

I see an article in your January number from Gen. W. H. Noble, of Bridgeport, Conn., giving his method of keeping tomatoes after frost. I have been practicing the same method almost identically for twelve or fifteen years past, and always successfully, keeping them sometimes as late as February. Our tomatoes begin to ripen here about the beginning of July; so we have a six months season, by laying in a good supply in November.

In order to insure a good Fall crop, I always sow a second crop of seed about the end of June. These will come into bearing (ripening) about the end of September or early in October. By frost (say first of November) the vines are full of fruit in all stages of growth. When a killing frost is expected, I pick in all the fruit, even those that are half grown, spread them out carefully in some dry place, where they can be used as they ripen. In our latitude almost any room in the house will answer the purpose. It is only necessary that the fruit should not freeze. I kept them many years on the floor of a basement room, where the temperature was always above the freezing point. Last year I had them in a cold pit covered with glass, but found that was too warm, as the fruit ripened too rapidly, and was all done before Christmas.

The full grown fruit will ripen perfectly, of fine color and good flavor; those only half-grown will also ripen, but of course are not as well flavored, nor as richly colored.

Whilst on the subject, I will state that the potato fungus (Peronospora infestans) almost invariably attacks the leaves of the second crop of tomatoes, not, however, to injure materially the production; but I have never seen any trace of the fungus on the first crop of tomatoes or on the potato leaves in this region.

EDITORIAL NOTES.

Fruit of the Black Hills.—A correspondent of the Louisville *Courier-Journal*, says, The wild Strawberries, Raspberries, Gooseberries and Currants, are very fine there. The Choke cherry is the only wild cherry, and though the grape-vine grows very large, nothing is said of their excellence.

Rossignold—A Good French Apple.—M. Paul Belleste of Rouen, France, while writing to the publisher in reference to his subscription to the *Gardener's Monthly*, speaks in high praise of the "Rossignold" apple. He says, "It is magnifi-

cent, excellent, large, brilliant yellow, ripens in February."

Apples for North-eastern New Jersey.—In answer to a correspondent for a selection of six best apples for this part of the country, he may take Red Astrachan, Gravenstein, Baldwin, King of Tompkins County, Rhode Island Greening and Golden Russet.

New Peaches.—A number of peaches that have been on probation the past year or two, ought to be able to give a good account of themselves this year or never. Among these may be named Alexander, Brandywine, Leatherbury's late, Bilyeu's late, Jarrell, Tuckahoe, Amsden, Wilkins', Steadley, and Nanticoke.

Apricots in Boston.—Among other fruits named by Mr. Rand, in a letter to the Editor of the *Garden*, as being abundant on "our street stands," Apricots and Nectarines are included. In Philadelphia last Spring a few apricots appeared from California in one fruiterer's window; but the quality was poor through the fruit having of necessity to be gathered before ripening. But the experiment is not likely to be repeated. The nectarine has not been seen on a Philadelphia stand for many years, and we congratulate our Boston friends on their good fortune in securing so full a supply of these delicious fruits.

The Secretary Grape.—This seedling of Mr. Ricketts, and an excellent kind, has been purchased by Mr. Underhill. It is a hybrid between the Clinton and some foreign variety, a large bunch, black, and is a very promising variety in every way. Messrs. Hance & Son have, also, some under propagation, but we do not know which ones.

The Japan Persimmon.—This is said to make an excellent orchard-house fruit. We ate some recently, preserved in Japan like figs and sent here, and they were far superior, in our estimation, to the best figs.

QUERIES.

Mulched Peach Trees.—Medford, Mass., writes:—"Late this Fall, I mulched my peach trees with straw, in order to retard the growth, and prevent injury by early frost next Spring. What will be the proper time to remove the mulching? Not the time with reference to the calendar, but to the budding or blossoming."

[It is generally atmospheric heat and not the warmth of the soil, that starts peach trees into bloom. No rule, therefore, can be drawn from their flowering. We should be disposed to leave the mulch on till all probability of another freeze was over—but taking it off as early as possible consistent with this chance.—Ed. G. M.]

Borers in Peach Trees.—M. says:—"The borers trouble my peach trees. I cut them out with a pointed knife; but that produces wounds and bleeding. What prevention can I apply? Will a coat of whitewash (lime) prove efficacious? One writer recommends making a mound of wood ashes several inches high around the trunk of the tree in the Spring, and spreading them under the tree in June, if my memory serves me. But my experience shows that the borers will enter two feet high, and apparently late in the Summer and in the Fall. Many persons, intelligent in other respects, do not know that the escape of sap and unsightly bunches of gum are caused by borers. One of my neighbors bandaged his bleeding tree with cloth as a remedy; I recommended the knife instead."

[A thick coat of whitewash is a capital thing, and where the whole stem is so done, right down to the roots, we doubt whether anything else would be required. If there be, grease the stem well down where the grubs work. None of these insects like oily matters.—Ed. G. M.]

Layered Grape Vines.—Mystic, Mass., asks:—"I layered some Concord grape vines last Spring, three or four inches deep, where I wish for new vines. Would it be better to let them remain, or to lift and set them deeper next Spring? The soil and sub-soil are dry. In that soil, I have dug large holes a foot deep, planted vines in the holes in the Spring, covering the roots about five inches, the next Spring filling the holes, thereby obtaining another tier of roots above; and the vines have done well."

[If the vines are well rooted they need not be removed, but if they have not made many fibres, it would be as well to leave them another year without separating from the parent.—Ed. G. M.]

Pruning Grape Roots.—Mystic writes:—"In setting out grape vines having long roots, is it best to shorten the roots—the vines, of course,

being cut down to within one bud of the ground? Is root pruning of old grape vines beneficial?"

[We should not prune the roots, but leave them lie along a few inches under the surface, as far as they will go. There is no good from pruning roots directly, but some vines may have diseased roots, and the cutting these away, and the new soil which the operation involves, is often the occasion for a new and advantageous start.—Ed. G. M.]

Rotting of Grapes in a Grapery.—J. H. McH. asks:—"Can the premature rotting of the fruit in a cold grapery be properly attributed to dampness from leakage of rain-water through an imperfect roof?

[This is one of a class of questions difficult to answer so as to apply to your special case. From that point of view it may or may not. A close, moist atmosphere, brought about by drip, when at the temperature of the dew point, will often favor fungoid growths that will end in rot. The Western grape-growers in the open air, know how often dew or fog under some circumstances produces mildews and moulds. But this again depends for its virulence on the vital powers of the subject. A cutting of any soft wooded plant often moulds at the dew point, when a similar shoot on a growing plant escapes, and from this we can see that if the vital powers of a grape vine be already low, the rot producing fungus, in a dewy atmosphere, would be more active than if the plant were in a high condition. Then there are many causes which will produce rot in grapes besides those arising from the state of the atmosphere, so that though the dampness you refer to *may* have caused rot, only an examination of the vines themselves by one accustomed to note these things closely, could say whether it had much to do with your case or not.—Ed. G. M.]

FORESTRY.

COMMUNICATIONS.

THE EUCALYPTUS GLOBULUS A FAILURE.

BY E. S. NIXON, CHATTANOOGA, TENN.

It will be remembered that in the last few years considerable interest has been manifested by a number of people to grow the "Fever Tree" in this country, and that articles innumerable have been written by various parties, in which they thought it would be hardy in the Carolinas, &c. The Department of Agriculture at Washington sent out the seed. Enthusiastic gentlemen sent to California and Australia for it, and the result is that a great many specimens of from ten to twenty feet high, and from two to four inches in diameter, have sprung up in various places in the South. In the month of December, before the coldest weather of the season had set in, I was traveling in Mississippi and Louisiana. I took particular pains to notice the effect of the cold weather on them and found that in every instance, with one exception, they were killed outright.

The one referred to was at Port Hudson, La., it being planted in the shelter of a high stable. It was a fine specimen, about twenty feet high and four inches in diameter, had braved one Winter with the loss of a few feet of its top. (It will be remembered that last Winter was the mildest for years.) The time I saw it, was two or three days after the cold snap of the 1st and 2d of December. I have no idea that it is living now. Judging from my observations I do not think it will prove hardy in any part of Louisiana, much less the Carolinas.

[Mr. Berckmans has already reported that it will not live in Georgia, much less in the Carolinas. It is barely possible that a few Australian trees may live in Florida, but every intelligent gardener could tell any newspaper reporter if he wanted to know, that no Australian tree will do in the other Atlantic States.—Ed. G. M.]

EDITORIAL NOTES.

Cork Trees in California.—The cork tree interest seems gaining ground in California. We learn from the *Santa Barbara Press*:—"A tree is now standing on the lot at the corner of Monte-

cito and Castillo streets. It is an evergreen oak about 20 feet high and covers about as much area. At the foot it is 40 inches in circumference, and at 6 feet from the ground, where it begins to branch, it is 30 inches in circumference. The leaf is very similar to the California live-oak, except that the underside is whitish. The tree, though carefully watched, has never been known to fruit. As Capt. Trussel does not permit specimens to be cut, we had to be satisfied with sticking a knife into the bark; it penetrated readily through a smooth, good quality of cork bark to a depth of an inch and a half."

A Large White Oak.—A newspaper paragraph tells us that, "a white oak tree recently felled in Michigan, measured twenty feet in circumference, and revealed three hundred and eighty rings in the grain; so it must have started about the time America was discovered."

Tree Planting in Minnesota.—A Western paper tells us that over a quarter of a million timber trees were planted out in the prairie districts of Minnesota last year.

The Profit of Timber Planting.—We like to give both sides of every question. Here is the black side of timber planting from the Chicago *Journal:*

"Now it is very likely that the supply of lumber will be much diminished during the next twenty-five years, though it is not true that forests are diminishing as rapidly as many state. In some sections of the country, forests are increasing very rapidly. To show that it is not ordinarily profitable to set out and tend trees for half a life time in order to have some lumber and wood, we have only to point to the portions of land in this and other Western States that are covered with trees, where land can be bought at a less price than on an open prairie in the vicinity. If there was a prospective speculative value in forest timber, aside from pine and a few other varieties, we should see capitalists competing to buy up all the forests in the country. The fact is, however, that investments are rarely ever made in this kind of property. At present, wood is little used for fuel in the West, and as improvements are made in the manner of consuming soft coal, it will be used less than now. As the country increases in age and wealth, more durable material than wood will be used in the construction of buildings."

Without wishing to prejudice the argument we might say to this, that if one carries coals to Newcastle, he would not expect to make much profit. To plant trees where they are now an incumbrance, and likely to be for some years, would be folly; but to plant them where their products would certainly be in demand, is another thing.

Preserving Oak Timber.—It is said that oak ties for railroads are made very durable by being steeped in chloride of zinc or creosote oil.

The Value of Catalpa Timber.—Positive facts in regard to the durability of Catalpa timber are scarce. The following is from the *Railway Age:*

"In the Spring of 1871, in conversation with Wm. R. Arthur, formerly superintendent of the Illinois Central Railroad, he stated that Catalpa ties would last forever; that it was easily cultivated, was of rapid growth, and when planted in groves grew straight and tall as any forest tree; that he had several groves then growing on his farm that had been planted but four years and were 20 to 30 feet high; that he had planted them for fence posts, but had subsequently learned that they would hold a spike as well as oak and would not split. Hence their value for cross-ties.

"Three years ago I cut from a Catalpa tree, that had been cut down after growing 30 years as a shade tree, two railroad cross-ties, and placed them in a track over which trains pass every hour, one under a rail joint. The spikes show no signs of loosening. The Catalpa does not hold a spike as well as oak, but sufficiently well for all practical purposes. It does not split easily. While not as tough as some woods, it should not be termed brittle, as stated in Millikin's essay. I subjected pieces of Catalpa, oak and ash, one inch square, to a breaking pressure twelve inches between supports. The Catalpa broke under a pressure of 703 pounds; ash 890 pounds; one piece of oak at 577, one at 709, and one at 1,141 pounds. The Catalpa deflected three times as much as the oak or ash before breaking."

Commercial Classes of Forest Trees.—At a recent meeting of a Farmer's association in Connecticut, Prof. Brewer of Yale College, gave a lecture in the evening on "Woods and Woodlands" of Connecticut. Great Britain, he said, has twenty-nine species of indigenous trees, growing over fifty feet in height; France thirty-three, and Europe only fifty species. Connecticut has sixty species indigenous to the soil, grow-

ing to the height of fifty feet and upwards. Humboldt called America the "leafy continent." Our government collected and exhibited four hundred and nineteen species of wood at the Centennial. He arranged woods in five classes, as follows: first, woods for fuel and charcoal; second, for buildings and ships; third, for furniture and joiners' work; fourth, for various manufacturers, such as spools, lasts, etc.; fifth, forest products, such as maple sugar and tan-bark. The lecture was full of instruction and was attentively listened to.

Sweet Fern for Tanning.—The paragraph in our magazine some months ago in regard to this article, attracted considerable attention. Here is an additional item about it:—

"The *Ellsworth American* says that Capt. Eaton made another shipment of two hundred barrels of sweet fern extract to the Boston leather market and with it his first consignment of extract of alder. This alder extract, like sweet fern extract, is new to the leather trade of this country. The tanning properties of these new agents have been thoroughly tested by practical tanners of Ellsworth, and found to be equal to, if not superior to the best tannin material in use in this country. Calfskins tanned with both the fern and the alder are as mellow and firm as the best tanned French calfskins, and much more beautiful in color."

Wood Pavements.—These have proved less durable than their friends imagined. It was thought at one time that a demand for blocks would have an influence on forestry, but the signs of the times, both in this country and Europe are, that this system of paving will never come into general use. With all the objection to stone, its comparative durability gives it an advantage which will always outweigh numbers of good points in the wood.

Natural History and Science.

COMMUNICATIONS.

BRODIÆA CALIFORNICA.

W. C. L. DREW, EL DORADO, CAL.

Of the many strange and wonderful growths found in California, the botanist finds few of a more peculiar habit, and none that I know of deserves more attention. No other plant in the vegetable world acts as does this one.

The Brodiæa Californica belongs to the natural order Liliaceæ, and is known among the mass of floral people as the Twining Hyacinth, a name which it well deserves, as will be seen by the description given below. It has two near relations, both natives of California, but of a different habit; they are—B. coccinea, bearing crimson flowers, and B. grandiflora, bearing blue flowers, both of which I shall describe at another time.

The B. Californica starts to grow early in the Spring, it sends up from two to four leaves, the latter very seldom, these are of various shades of green, being very dark where exposed to the sunlight, and light in the shade; they vary from one-half to one inch in diameter, and from one to three feet in length. I have often gathered them of over a yard in length, but they were always of plants in the shade, they have a deep channel running the entire length, and nearly always lie prostrate on the ground.

The flower-stem starts to grow about the middle of May; as soon as it gets to be five or six inches long, it commences to twine, and twines itself over any shrub or plant in its vicinity, whether five or ten feet high, it keeps on twining until it reaches the top of its support.

It takes it from two to four weeks to reach the top of its support, and all this time the flower-bud remains dormant. After reaching the greatest height it can get, it stops to take a rest for a week or two. Then occurs the most singular phenomenon of all. The stem breaks off close to the ground, and keeps no connection whatever with mother earth, which until this time has given it nourishment; now the flower-bud begins to expand, and grows for about two weeks, when lo! the bud opens and exposes to view from six to sixty other flower-buds, which up to this time have been safely hidden from view. In about a

week, or the first to the middle of July, the flowers open, and remain from two to six weeks, and this without any connection with the earth whatever. Whether it derives nourishment from the shrub supporting it, or the air, I am not prepared to say.

The flowers are of various shades of pink and pinkish purple; as before stated they are borne in clusters of from twelve to sixty; they are from one-half to one inch inch in diameter, and the clusters from one to six inches in diameter.

The bulbs are of a medium size, and very deep in the ground, and so entangled with roots of underbrush that it is almost impossible to get them.

CULTURE.

To any one who can get them, I would say get them. Plant about four inches deep, in rather good rich soil, near some bush or shrub, so as to afford some support. It will not injure it any way. Cover in cold climate with suitable covering. Give no water except what it gets naturally. By following the above directions, I think you will have success.

EDITORIAL NOTES.

Interpretation of Varying Forms.—At a recent meeting of the Philadelphia Academy of Natural Sciences, Mr. Thos. Meehan said that William Bartram, in the last century, had found forms of Liriodendron tulipifera on the Schuylkill River, as he had been informed by his son-in-law, with entire leaves; but only this year had he succeeded in re-discovering them. Some of these leaves he exhibited. He observed that years ago such discoveries had an interest in themselves. Now the botanist expected to find entire leaved forms among kinds usually lobed, or lobed ones among the entire class. The only value now in these discoveries was in any lesson they might teach. As a rule he hesitated to refer to the unpublished observations of others, preferring that the discoverers should in their own good time and way, report what they had found, but hoped to be pardoned on this occasion, for saying that on a recent visit to the Academy, the distinguished botanist, Dr. Engelmann, had pointed out that some oaks had lobed leaves even in early infancy, while others had entire leaves; but that those which had early lobed leaves assumed more entire leaves when mature, and those which had entire leaves when young, had lobed leaves when fully grown. In many oaks which he had examined, he found Dr. Engelmann's observations correct, and that it extended to many other plants. The mulberries generally, had lobed leaves in their younger years, but when mature, the leaves were uniformly entire, and this was especially well known in the case of the Broussonettia. In young Japan honeysuckles, the leaves were querciform or variously lobed, while at maturity the tendency to union was often remarkable. In the common ivy, the halbert shaped leaves of youth, always gave place to lobeless forms when of fruiting age. But it was in cruciferous plants that the differences were best seen. Here lyrate or pinnatified leaves in infancy, often gave place to entire ones as the plant grew; while there were numberless instances in which entire juvenescent leaves gave place to pinnatified ones.

However, the point for the present evening was, that there was often a vast difference between the leaves of a plant's early life, and their form in advanced age. In Coniferæ, he said, this was well known. During the first few months from seed, many different species in their several sub-divisions, were so nearly alike that it was almost impossible to tell any one apart till a little age had brought divergence from the original type. He exhibited some young Thujas to illustrate this. The early Thujas all had ericoid leaves. In the forms which we knew as arborvitæs, the conditions with which we were familiar was the secondary form. In these the leaves which in juvenescense were free and heath-like, had become almost wholly united with the branches. But there were cases where the young arborvitæs had never had power to leave their early condition. They were the analogoues of what we know in human nature as imbeciles or feeble-minded; and of this class were many so called "Retinospóras," Biota Meldensis, and many Junipers and Thujas. He had known the Thuja ericoides of gardens to remain fifteen years in this infantile state, and then only one of thousands to regain the pure adolescent or fan-like arborvitæ form.

In all these cases it is important to notice that a comparative feebleness of growth, and an absence, more or less total, of all disposition to produce flowers, go with these continuously juvenescent characters. With the appearance of sexual characters, there is change of form; and, in proportion as this change is the more

marked, is the relative productiveness. The white oak (Quercus alba) which, during its first year has entire leaves, has them lobed at maturity; and those which have them the most deeply lobed are the most productive in acorns.

He found these observations to hold good in the entire leaved Liriodendron. During the first year all tulip trees had entire leaves, or at at least more or less so in comparison with those which they afterwards assume. These large trees with entire leaves had merely retained their juvenescent form. The other attendant characters of juvenescence were also present. The tree from which the large, entire leaf exhibited was taken, had no signs of ever having borne seeds. In one place he found two trees which, from surrounding circumstances he should judge, were probably about the same age, and in every circumstance relating to nutrition, equally favored; one with very deeply cut leaves, even to the most feeble branch, was covered with seed cones, and was thirteen feet in circumference. The other had leaves almost entire, with but few fruit, and a trunk of only eight feet round.

The danger was, that in discussing laws of variation in connection with the origin of species, we may overlook these sexual and physical changes. If one never having seen a Baltimore oriole, should notice particularly the brilliant plumage of the male bird, and without noticing the sex, compare it with the very different looking female bird, he would be very apt to think he had found a "missing link" in a grand evolutionary chain. There were many differences in animals which were recognized as having their origin in obscure sexual laws, as well as many more unrecognized, but probable. And he believed these cases were far more numerous in vegetation, and which would have to be carefully eliminated from consideration in any study on the origin of species or the evolution of form in relation thereto.

Botanical Garden in Fairmount Park.—For many years past there has been a desire in Philadelphia to establish a botanic garden, but the exact way to bring this about has never been clear. In a general way the most enduring establishments of this kind grow, and are not made. As a rule, the majority of the people who pay taxes prefer horticulture to mere botanical science, and therefore, the one should grow out of the other, if at all. The Kew Garden plan is the best yet worked out, and the Horticultural Department of the Centennial may lead to such a garden as Kew. The gardening about the Hall was so very beautiful, that there was a general desire by the people to "have it over again." The City Councils have made an appropriation for the purpose, and some intelligent citizens, in order to get a good start for an arboretum, moved in the purchase of the exhibitors' collections as a nucleus to start from. Mr. Eli K. Price has recently made a report to the American Philosophical Society, from which we extract as follows:

"Some planting out of the various trees in the nursery had been made in the Park along the few avenues opened, and 1639 trees have been planted over the space occupied for the Centennial International Exhibition. The formation of the grounds within that space by the Board of Finance of the Exhibition and the planting therein, are an invaluable acquisition to Fairmount Park, as open waste fields have thereby been converted into beautiful gardens, with avenues, walks and fountains. It is true, that the garden of the Horticultural Hall was, to a large extent, planted with trees and flowers by Foreign and American exhibitors. James Veitch & Sons, of King's Road, Chelsea, S. W., near London, presented to the Park Commissioners their valuable collection of trees and plants, consisting chiefly of Rhododendrons.

The American exhibitors who had collected and planted in the garden of Horticultural Hall a rare variety of trees and ligneous plants were Thomes Meehan, of Germantown; Hoopes, Brother & Thomas, of West Chester, Pa.; S. B. Parsons & Sons, and R. B. Parsons & Co., of Flushing, N. Y.; Miller & Hayes, of Mount Airy, Philadelphia; Mahlon Moon, of Morrisville, Pa.; and Robert Buist, of Philadelphia. They were actuated by a liberal desire that their collections should remain in the Park, and offered them at prices which they esteemed little over half the cost to them. It was an object to the Commissioners to secure these permanently for our Park, to be transplanted as thinning out shall be required for their healthy growth, and they have been secured by purchase.

The resources for this purchase should be here stated. They were as follows:

The city's appropriation, by the Park Commission applied for Nurseries in 1876	$1,500 00
Accumulated Interest on Elliott Cresson's Legacy	3,000 00
" " Andre F. Michaux's Legacy	414 60

"Contributions by the following persons of $100 each, to-wit:

Wm. L. Schaffer, George C. Thomas, Chas. H. Rogers, Samuel Jeanes, Joseph Jeanes, Joshua T. Jeanes, Isaac F. Baker, Eli K. Price	800 00
Moses Brown and J. C. Strawbridge, each $50	100 00
Total	$5,814 60

"As the legacies of Elliott Cresson and André F. Michaux are enduring funds for planting in the Fairmouut Park and elsewhere, it is proper here to show what are the trusts of those wills,

and what are the obligations to the public incurred by the Park Commission in executing the agency committed to them."

After showing the tree planting resources of the city as derived from the legacy of Elliott Cresson, who left $5,000, the interest annually to go to planting shade trees for the citizens, and of André F. Michaux, who left $12,000 to the Philosophical Society, for "especially the encouragement of sylvaculture," Mr. Price says:

"Within the Park the landscape gardener will exert his skill to blend in beauty the self-sown forests there growing, with artistic planting, as the formation of new avenues and fresh grading will demand; where the new trees will be of kinds not native to our environs, and show in contrast the hand of Art; but at the same time greatly add to the variety and novelty of trees and plants; so that the trees of the Park shall become a great *Arboretum*, and its flower beds become Botanic Gardens. Thus the landscape formed to please the taste, and the gardens to delight the eye, will become schools of science for all scholars and citizens. For this end, each section of the Park will be planted with the largest practicable variety of trees and plants.

"That the variety of these may be greatly increased, we have purchased the trees exhibited in Horticultural Garden, and the gathering and planting of acorns and tree seeds have had in view mainly to increase the number of species, while providing the necessary stock whence to transplant trees over our Park of nearly three thousand acres in extent."

The Eucalyptus in our Climate.—American nurserymen are "pestered to death" with inquiries about Eucalyptus plants for forest growing, from all sorts of places, from Labrador to the Potomac. Any man of common sense knows that one might nearly as well plant the pine apple or banana as the Eucalyptus; but the common newspapers that know little about these things, or anything but "Democrat" or "Republican," keep the people in such a state of excitement over it, that the agricultural press is a poor offset to this great power.

It is bad enough to have to be continually on the strain to counteract the mischief these regular papers do; but what shall we say when men of science join with the newspapers in promulgating this nonsense. In the proceedings of the American Philosophical Society now before us, a Mr. Davenport is reported as saying at one of the meetings that "some of the Eucalyptus of Australia will probably grow in Philadelphia, and he will be happy to assist in their introduction."

No doubt they will "grow in Philadelphia" during the Summer, but what is to become of them in the Winter, when they don't grow? It is too bad to have such stuff go out under the stamp of this time-honored Society.

Ripening of the Persimmon.—A correspondent of the *London Journal of Horticulture* says:—"In your journal of November 30th in an article on Diospyros Kaki you repeat the popular opinion that the Diospyros virginiana's fruit 'is not palatable until frozen.' Allow me to say that this is a fallacy. The Persimmon, as it is known through the southern half of the United States, is quite variable in the size, season and quality of its fruit, and I have no doubt will be ultimately developed by selection into a valuable species of fruit. I have seen ripe specimens in this latitude (39° N., about St. Louis) as early as the end of August, whilst the fruit of some trees hardly ripens at all, or if so, imperfectly, by the time cold weather begins. But the ripening and sweetness seem to depend entirely on the length and heat of the Summer, and not at all on the subduing powers of early frosts. Hot Summers produce early-ripened delicious fruit, cold seasons and high latitudes produce poor fruit. Arthur Bryant (a brother of the poet Bryant), living at Princeton, Illinois, about latitude 41½ N., tells me that in some seasons the Persimmon with him does not ripen, and he thinks the frost has nothing to do with its maturing. He has trees nearly forty years old of his own planting, and has observed them closely."

We refer to this in order to say that we thought intelligent persons everywhere now knew that it was not frost that gave sweetness to the Persimmon, though it often helps the cause which does.

The ripening of fruits is a chemical process. After growth ceases, decay or chemical action commences, and what we call "ripening" is really the first stage of decomposition. Early ripening kinds will commence this decay without frost; a late kind will decay if there is no frost. Frost simply hastens decay. Of course nature must have done her part before this particular ripening begins. Frost nor any agent would give sweetness to a half-ripe Persimmon.

The ripening of a Persimmon is just the same process as the ripening of a medlar, about which all our foreign friends know.

New United States Plants.—As Western explorations are pushed, new plants are discovered. In the Proceedings of the American Academy of Arts and Sciences, just issued, Prof. Gray de-

scribes fifty-three new species—a very large number for one year. Most of these are due to the indefatigable labors of Dr. C. C. Parry. Many of these will as usual be of little horticultural interest; but we think from the descriptions, there will be many more useful or ornamental plants than common with new discoveries.

Canbya candida.—Under this name Prof. Asa Gray describes a new plant from Southeast California, in the proceedings of the American Academy of Arts and Sciences. It was discovered by Dr. Parry, and is dedicated to Mr. W. M. Canby of Wilmington, Del. The plant is of the poppy family, but very minute, and will not perhaps be of much value to florists, but as commemorating one of the most worthy of American botanists, the adoption of the name by Dr. Gray will be received with pleasure by Mr. Canby's many friends.

Graft Hybrids.—A newspaper paragraph says that Dr. Hooibreuk has succeeded in producing new varieties by "crossing the sap," which we suppose is a form of expressing graft hybrids.

The Drop or Bag Worm.—We have but one very bad pest of this family in the Eastern States, but they appear to have others in California. Dr. Edwards, in a communication to the Academy of Natural Sciences recently, says:

"The species at present described as natives of the United States are very few, not more than five, belonging to perhaps as many genera, being distinctly known to entomologists. The most common of these is a species called Thyridopteryx ephemeriformis, which, according to Dr. Harris, is occasionally abundant in Philadelphia and its vicinity, and there popularly known in its larval state as the drop-worm, or basket-worm. It is at times very destructive to the arbor-vitæ, larch and hemlock trees. In California, though none as yet have been described, three species are known to me, two of which belong to the typical genus, Psyche; the third, and by far the most interesting, which has just been discovered by our President, Prof. Davidson, representing the genus Œceticus. It is, however, a matter of regret that the caterpillar cases of these three species are alone known, the perfect insects as yet evading our discovery."

Gilia Parryæ.—Mr. Lemmon, the enthusiastic California botanical discoverer thus tells the *Rural Press* how Mrs. Parry received the honor of having this beautiful new plant named after her:

"Besides making a large collection of the known flora of the South, Dr. Parry and I picked up, it appears, several plants new to science; the Doctor a dozen and I half as many. Among the latter a beautiful little Gilia from the Mohave river, with large pink and white blossoms, very desirable for cultivation. Upon its discovery I studied it and found it different from any species yet published, so sent the specimens to Dr. Gray, with the request that he would name it Gilia Parryæ, to honor the noble wife of Dr. Parry, whose many years of botanical service entitle her to recognition.

A month or so after, Dr. Palmer, an indefatigable collector of that region, also picked up the plant and forwarded with his collection. When Dr. Gray came to examine the accumulations of the season, he described the new plant and named it Gilia Palmeri. As soon as I learned the fact I stoutly protested, arguing at length my priority of discovery, also my determination, citing Dr. Parry for witness, whereupon Dr. Gray has just revoked his former action and now the beautiful little gem is named for all time Gilia Parryæ, 'dedicated to Mrs. Dr. Parry,' Dr. Gray adds, 'whose services to botany well merit this recognition."

Music and Plants.—Some fancyist has written about the benefits of music on the health of plants. Of course it is but a seasonable joke, but many of "the papers" are passing it around as the best of sense.

The use of Honeyed Secretions.—An esteemed correspondent says:—"Your botanical friend has still an inquiry or two to make on honeyed secretions. This appears, you now tell us, because Dr. H., of Vienna, 'shows that flowers which could not be fertilized by their own pollen, or foreign pollen, were successfully impregnated when nectar was applied to the stigma before the application of the pollen.'

"First, will you give a reference so that one may see what Dr. H. was driving at, and what he made out? As he appears to have been working on some stigma that would not act on the pollen, either of its own or any other flower, we suspect that he was trying pollen on immature stigmas, and then finding that if he put on nectar the pollen tubes would start. So they might; for it is well known that they will protrude a little way (and that is all) in any sugary solution, of a certain density, without any stigma in the case. What your proposition needs is to bring forward at least one case in which the secretion of the nectary of a flower gets applied to a stigma. Can you refer to such a case?"

[We are sorry not to have at hand the details of Dr. H.'s experiments. All we know is given

in our last. We had no idea of suggesting that the "secretion of the nectary of a flower gets applied to a stigma." What is secreted by the nectaries we regard as *waste*, and so expressed it. But Boussingault shows that sweet matter pervades the whole tissue—of the pistil, as well as of other parts—and it occurred to us in view of this possibility that the sweet matter might be of some direct use to the plant in the performance of its functions, and not merely nothing but a bait to allure insects. Granting that it may be of some use directly to the plant, it may be in relation to pollenization; and, when deficient in the pistil, an application to the stigma may supply it. All this is of course hypothetical, but it is a hypothesis suggested by Dr. Hooibreuk's experiments, quite independently of any thing which he may have been trying to prove.

Honey was no doubt made for insects, but in the same sense as cane sugar and molasses were made for man. The cane sugar plant has "an advantage" by man's use of the sweet secretion; for it has been petted and fostered so that it has gained immensely in "the struggle for life." Thousands of sugar plants exist that never would, but for the saccharine element. As far as it goes it is a fair argument, but who would insist that the sugar was developed for this purpose and is of no direct use to the plant itself? It is these considerations which make us hesitate to believe that before insects were created, sweet secretions did not exist; and nothwithstanding the doubts of our correspondent, we think no harm will result from the investigations we proposed.—Ed. G. M.]

QUERIES.

Fertilization by Insect Agency.—Prof. Asa Gray writes:—"We are not all of us as careful and exact in our statements as Mr. Darwin is, and so our language is sometimes misapprehended and sometimes needs correction. Darwin's summing up in the first edition of his Orchid-book, is: 'Nature thus tells us in the most emphatic manner, that she abhors perpetual self-fertilization.' In the new edition, issued this year, we read: 'It is hardly an exaggeration to say that Nature tells us in the most emphatic manner, that she abhors perpetual self-fertilization. This manifests carefulness to be within bounds, but does not look like giving up the principle. Some of us have been less careful to keep the word 'perpetual' perpetually in view; but it has generally been implied in the whole course of statement, which has recognized the fact that most flowers have a chance, and many a predominant chance, for self-fertilization. But this does not at all falsify the declaration that 'showy, fragrant, honey-bearing flowers are arranged for cross-fertilization.' If anybody wants to see a good demonstration of that, let him read the second chapter of Darwin's new book on the effects of close and cross-fertilization in plants, or a summary of it in the March number of the *American Agriculturist*. Here is a plant abundantly capable of self-fertilization, which close-fertilizes when covered, but is, in fact, freely cross-fertilized in nature. Mr. Darwin proves, by a course of experiments, that the crossing is a benefit, and a great benefit; and the inference is almost unavoidable that these plants could not go on indefinitely without it.

"It is now clear, however, that there is more self-fertilization than was at first supposed. H. Miller has largely shown this, while at the same time contending for the absolute need of cross-fertilization; just as you yourself, Mr. Editor, have largely shown it, while contending that cross-fertilization is of no account. But I think you will soon agree that cross-fertilization is of account, and that showy, odorous, nectariferous flowers are adapted for it, notwithstanding ever so much self-fertilization."

[In the "Detroit" paper the text taken was this, "All plants with conspicuously colored flowers, or powerful odors, or honeyed secretions are fertilized by insects; therefore, before honey-feeding insects existed, the vegetation of our globe could not have been ornamented with bright colored flowers." This is the point we ventured to differ from. If the proposition now made that these flowers are so arranged that cross-fertilization is possible, and that it occasionally does occur, is not inconsistent with the point we ventured to question in the above quotation, we have of course nothing further to say. We have never said cross-fertilization *was* of no account, but that we do not regard it as *proved*. —Ed. G. M.]

The Verbena Rust.—We have always felt that the Verbena Rust must be of fungoid origin, because all the attendant phenomena are fungoidal, and there is no character whatever that

classes it with insect work. Still we know how easy it is to be mistaken, and have therefore suggested to those who have faith in the insect origin of the disease, to send the specimens to competent Entomologists for the insect's identification. Mr. Chas. Henderson has generously undertaken this good work, and from two of the recipients of specimens—Prof. Riley and Mr. J. Stauffer—we have replies. Mr. Stauffer's views were directly opposite to Prof. Riley's, so we thought best to send it to Prof. Riley, that he might review his own if necessary. As thus far, Mr. Stauffer is the only naturalist that we know of who takes the insect view, we have thought it but fair to give him the first hearing, and below appears Prof. Riley's comment:

"After a close inspection of the diseased leaves left with me, I obtained fresh ones from my neighbor, Mr. Hensel, as in getting rid of the fragments of moss in which the leaves were packed, I had to disturb the surface more or less of the leaves. I have also made a close inspection of the fly—an Aphidian, belonging to Mr. Walsh's genus, Callipterus. Honey tubes short, subulate, Antennæ long, seven-jointed, discoidals of the front wings equally thick, carries the wings horizontally folded; in this latter respect it agrees with the winged of the Phylloxera (vastatrix, vitifoliæ). These in their larvæl state infest the root in Winter, and it seems it is proved that they also infest the leaves in the Summer season. The Callipterus is certainly the small black-fly noticed around the Verbenas, and deposits its eggs, as I captured them from the leaf, January 15, 1877.

"Now, as to the rust. Their larvæ when hatched, (the minute mites mentioned,) deplete the leaf and empoverish the juices, and cause the leaf to blight, unless the plants are in such good soil and healthy vigor, as to be able to bear this depletion, and then no fungus will follow, and the plant may escape. But when the stomata or breathing pores of the leaf are interfered with and the juices abstracted, the leaf becomes depauperated and forms a fit nidus for the fungus. So Mr. Henderson is wrong to say that, 'the insect is the consequence, and not the cause, of the disease.' Mr. Brinton's views are more accurate. I have found well defined fungus and made accurate drawings of them from the mildew in its white powdery form, or first stage, when the leaf is yet green. By comparison with quite a number of forms illustrated, it approaches the mycelium and sporadic branches of the Cistopus candidus. Figured by Smee, in his *Garden*, p. 366, he says many plants are attacked with spots of white rust, on the leaves, arranged in a circular manner. The mycelium creeps through the cellular tissue of the plants, and after a time gives rise to zoospores or moving bodies to perpetuate the species, adding, 'I believe that in all these cases the plant is previously pierced by an Aphis.' One word as to zoospores: so long as they are free they have indeed a great likeness to infusoria, but as soon as they have found a fit resting place all trace of motion ceases, and their offspring comforts itself as a vegetable; this is scientifically demonstrated, but zoospores never turn to Aphids or the like. The disease on the Heliotrope differs; here the root of the hair becomes enlarged, and a yellowish matter is secreted; this turns dark, and then the bulb-like base cracks open and discharges sporules. I first considered the whole as a fungus, but if mycelium is formed under the epidermis and enters into the base of the tubular hairs, and produces its sporules, then, this is a fungus of a totally new kind to me, but its cause may arise from the same source—poverty or depletion."

Prof. Riley says:—"I have not time now to further investigate the Verbena rust, but feel morally sure that it is a fungus disease. The "black-fly" referred to in my answer to Mr. Henderson is a Diplosis. There are several Aphids affecting both leaves and roots of Verbenas, but they have nothing to do with the rust."

Since the above was in type, a note from Prof. Farlow tells us that the Verbena rust is a fungus, and that its name is Erysiphe Verbenæ of Schweinitz. It will therefore be an old acquaintance to mycologists.

ZELKOVA "CRENSTA."—Prof. Sargent writes:—"My authority for Zelkova crenata is Planchon, in Decandolles Prodromus, the last botanist who has worked Ulmaceæ comprehensively. He does not even allow Abelicea as a genus, so I suppose we must retain Zelkova at least until another volume of the Genera Plantarum appears.

"But what a pity we cannot retain Michaux's Planera Richardi; a much pleasanter and more easily remembered name; but this does not make much difference so long as the tree is planted, so I hope you will get some of the grafts Mr. Price so kindly offers, and see what can be done with them.

"Typographical errors are not very pleasant for the editor, I will allow, but how about his

unfortunate contributors? Notice Crensta twice in Mr. Price's communication, for crenata, and one of these in large letters as a heading at that."

[Having been told that the subject had been "worked up at Cambridge," no pains were taken to look up the matter beyond noticing the relation of the genus to Abelicea. "Crensta" was our correspondent's orthography, and not the typographer's, and what with the capital and peculiar spelling, we took it for an aboriginal proper name. We did not know we had our old friend Planera Richardi, to deal with. The Germantown Nurseries in time past have distributed this tree pretty freely, and so we suppose have those of Flushing and elsewhere, and we suspect that though the Woodland's tree may be the finest, it is not by a long way the only specimen in the country. All this trouble comes from so many synonyms.—Ed. G. M.]

Chemical Hygroscope.—F. M., Ontario, Canada, asks:—"What shade of color or number should the Hygroscope represent in a greenhouse or conservatory to keep the plants in best health, say when thermometer runs from 60° to 65°."

[The Hygroscope is such a recent invention in its cheaper forms, that we can say little of its application to plant culture, especially as experienced gardeners do not find much difficulty in regard to the atmospheric moisture. In the use of the Hygroscope, however, all we can say is that the bluer the tint the drier the air, while the deeper the pink the more moisture.—Ed. G. M.]

Name of Plant.—N. says:—"In June last year, near Mauch Chunk, Pa., by the rail side, and peeping out of the woods, I came upon a very pretty shrub. It was not flowers that pleased, for it was out of bloom; but its berries, of every shade, from deep red to crimson, seemed to speak for it a place in the shrubbery. I am puzzled to identify the plant in nursery catalogues or books. It was a favorite with all the pleasure parties which I met. All bore it companion to the other woodland flowers of the season. If I have recalled the plant by the above traits, you will oblige many readers by giving us its name."

[Not much to identify a plant by; but probably the Canadian Holly, Nemopanthes canadensis, and well worthy of cultivation.—Ed. G. M.]

Insect on the Grape.—Some time since, a Wilmington, Del., correspondent wrote about a peculiar trouble with his grape vines, and which we suspected was caused by an insect unknown to us, and advised the sending to Prof. Riley, which it appears he has done, and Prof. R. kindly sends us the following response:—

"From specimens just sent me, the insect in grapery (G. M., Nov.) at Wilmington, Del., is the grape leaf-folder (Desmia maculalis). See my Third Rep., p. 61. Since that was written, I have found it worst on Catawba, Goethe, Iona, Isabella, Croton, Diana and Creveling—least on Concord, Cynthiana, Louisiana and Martha. Bring hands quick together and crush worm in fold. Destroy chrysalides in Fall."

LITERATURE, TRAVELS & PERSONAL NOTES.

COMMUNICATIONS.

HORTENSIA OR HORTENSIS.

BY T.

In the *Monthly* for January last, I endeavored to show that the correct name for the common Hydrangea is H. Hortensia, and in support of my view, cited authorities and gave reasons that would convince most persons of its accuracy. The *Rural New Yorker*, however, still maintains that the plant should be called H. hortensis, and on February 17th reproduces my note—which is very fair—that it may reply to it in a manner which can hardly be characterized as fair. I cannot ask you to reprint the *Rural's* remarks, as it occupies over one and a half of its ample columns in its attempt to show that others, besides itself, have used an incorrect name; indeed, that journal finds such evident satisfaction in re-asserting its own way to be the right one, that I would not disturb it, did it not singularly misrepresent one of the authorities I cited, and

go quite out of its way to ascribe unworthy motives to an eminent botanist not cited, or in any manner alluded to in my article. As silence with regard to these may be construed as an admission on my part of the truth of the *Rural's* representations, I ask space for a brief reply, with which I drop the subject.

In my former note I quoted what Loudon says (in his "Trees and Shrubs of Britain," Vol. 2, p. 986), in reference to the name Hortensia. Respecting this the *Rural* says: "Now for what Loudon says in the work quoted. He gives seven names or synonyms of this plant, and then tells the story which 'T' repeats, about how the name Hortensia came to be one of the number, and its becoming common in France; *but he is very careful not to decide which is the correct one.*"

The italics are mine; for so remarkable a statement deserves the distinction. The assertion is here distinctly made, that in giving seven different names for the plant, Loudon does not indicate which of the seven he prefers, and adopts as the correct name, but is very careful not to do so. Those familiar with botanical descriptions know that the author, when there are several names, places the one he approves and adopts first, and the others follow as synonyms; and that it is further the custom to make the approved name more conspicuous by putting it in a different type from the others. Loudon was a "very careful" man, and in this case he was not only "very careful" to "decide" which among several names is the "correct one" by placing it *first*, but he further emphasises this decision by placing *H. Hortensia* in italics, while all the discarded names are in Roman, or in ordinary type. The *Rural* refers me to another work by Loudon, his "Encyclopædia of Plants," where it says "he gives the correct name as hortensis." I admit that in the "Encyclopædia," published in 1829, he does give the name as "hortensis," but Loudon's labors extended over many years, and as he was a man who grew wiser as he grew older, he did not continue the errors of his earlier works in his later ones. The fact that he did, in his "Trees and Shrubs," in 1838, discard "hortensis" and adopt Hortensia, at the same time giving his reasons for accepting the latter, indicates a desire to be right, which may be commended as an example worthy of imitation.

The *Rural* cites Donn, who, it tells us, "strangely enough, quotes for his authority in retaining the name hortensis, Augustin Pyramus De Candolle, who was a celebrated Swiss botanist, and the father of the present Alphonse De Candolle, referred to above as the man who tickles French vanity by restoring the name of Hortensia." This reference "above" to Alphonse De Candolle, is perhaps the most remarkable thing in the *Rural's* remarkable article. It says: "Prof. De Candolle, the younger, doubtless in consideration of this universal sentiment [admiration for Hortense] of his countrymen, retains this name [Hortensia] in his work, and Dr. Gray, from a similar consideration for his friend, De C., follows this great botanical authority: thus an error is perpetuated by these two authorities, and backed up by 'T' in the *Gardener's Monthly*." Our wonder that Alphonse De Candolle should be charged with being influenced by unworthy motives in adopting a scientific name, is only equalled by that at seeing Prof. Gray charged with following any one—his position being usually that of a leader.

This is probably the first time that the scientific integrity of Alph. De. Candolle or Asa Gray was ever called in question, and the *Rural*, in making these charges, assumes a position more conspicuous than enviable. If any one thing relating to this charge can be more strange than another, it is the perfectly gratuitous character of the attack, for I am quite unable to see why Alph. De Candolle is cited at all, as I made no reference to him whatever in my article. It is true that I did, in support of my position, refer the *Rural* to "any botanical work of acknowledged authority, as De Candolle's for Europe, and Gray's for America;" had I intended Alph. De Candolle, I should have said so. The *Rural* does not seem to be aware that it is the custom among botanists to speak of the father simply as De Candolle, and to abbreviate it as DC.; while they call the son A. or Alph. De Candolle, and abbreviate his name as A. DC. The work of De Candolle's I referred to was the "Prodromus," which consists of 21 vols., running through half a century, and which the *Rural* assumes is all by the younger De Candolle. If it will turn to the fourth volume, it will find on the title page, "Anctore Aug. Pyramo De Candolle," and that the date is 1830. By turning to p. 15, it will find H. Hortensia, which, being the work of the father, leaves the charges against the son without any foundation worth speaking of, and the *Rural's* indignation at the desire of the son to "tickle French vanity," seems like a waste of powder. If Donn quoted De Candolle as author-

ity for "hortensis," he evidently did not quote correctly. In such cases the character and weight of the authorities are of quite as much importance as their number, and with most persons the authority of De Candolle and Asa Gray will outweigh that of Donn, Curtis, and—if I may be allowed to say it—even that of the *Rural* itself.

EDITORIAL NOTES.

THE PLANT LIFE OF NORWAY.—This is the title of a beautiful work just issued in German by the distinguished Danish Botanist, Dr. F. C. Schubeler, of Christiana. The many odd shapes which trees take in that peculiar climate, are beautifully illustrated. For instance, the Norway spruce in heavy snow will have its branches pressed to the ground by the weight and then earth will wash down with some thaw and cover the lowermost. In such cases, the point of the branch will grow up, and roots push down, just as in layering, and in after years a very pretty clump come into existence as if it were a mother with all her young children about her. The peculiar climate and conditions of Norway make these curious appearances in trees not uncommon. Norway spruces blow down, and get covered by snow, and moisture hangs about the prostrate trunk long enough to encourage sprouts which become in time trees, and there will often be a half a dozen good sized trees which have grown out of a prostrate trunk in this way. The whole book is full of such interesting information. How slow trees sometimes grow is well illustrated in the case of a common Juniper. When sawed off it was found to have made 297 annual layers of wood, and yet was but twelve and a half inches in diameter.

In regard to the varied character of the growths of trees in differing circumstances, there is, for instance, a sketch of the Juniper (Juniperus communis). As we generally see it, it is at best but a conical, usually a rather cylindrical growing tree. He figures one which has a head like an old oak or a chestnut, and describes it as being twenty-five feet high, with a straight trunk for six feet up to the branches. This trunk is seven feet one inch in circumference, and the great round head of branches, about twenty-five feet wide—completely round. Americans would give a good deal to have a specimen of a Juniper like that.

Dr. Schubeler does not forget the points of interest attractive to the scientific as well as the mere intelligent reader. He gives a plate of the variations in the scales of Norway spruce cones, all taken from the vicinity of Christiana, which those who are making so many new species out of our Californian Coniferæ may well profit by. D. Schubeler pleasantly remarks, that there seems to be some principles in human nature of love for beauty and nice things, in spite of some other principles which would seem to oppose them. He instances the use made by the Laplanders of the sweet vernal grass, Anthoxanthum odoratum. He describes them as an indescribably dirty race; seeming to rejoice and take pride in filthiness, and yet they make a sort of plaited collar of this grass, so as to enjoy its delicately delicious perfume.

All who have a knowledge of the German language will enjoy a rich treat in the perusal of Dr. Schubeler's book.

BURNING OF LEE'S GREENHOUSES.—We are sorry to have to write the burning of Lee's Greenhouses at Lake View, near Chicago, on the first of February.

PROCEEDINGS OF THE GEORGIA STATE HORT. SOCIETY.—This is the first issue and contains the address of the first President, P. J. Berckmans, and a full list of fruits best adapted to the State.

THE EARLY NURSERYMEN OF ILLINOIS.—Mr. W. C. Flagg says—Joseph Curtis, John Smith and W. B. Archer established nurseries about 1818 in Illinois. "Before 1830, nurseries of more or less importance had been begun in Adams county by John Wood (1820); in Edwards, by Sidney Spring (1825); in Jersey, by Robert Avery (1825); in Madison, by—— Masson (1820?); in Perry, by Joseph Bradshaw (1825?); in St. Clair, by —— Wood (1820?), and in Vermillion, by John Canady (1826). This list is, no doubt, quite incomplete.

HAND-BOOK OF PRACTICAL LANDSCAPE GARDENING, by F. R. Elliott. Published by D. M. Dewey, Rochester, N. Y. It is gratifying to note the tendency to an appreciation of beauty and taste among the farmers and fruit growers of the country. Those we mean that are outside of the regular horticultural literature properly so called. Anything that will help this good tendency is a great public blessing. For this class this little book of Mr. Elliott's is just the thing. The more elaborate works of Downing and Kemp can never be brought to them. They take too many bushels of corn to buy, and when bought cannot be understood. Cheap, and yet attractive volu-

mes, like this little book, are capable of doing much better work. The critical reader might wish that the names of the plants had been more correctly given by the author in many cases, and that the proof-reader had been more closely looked after in others. But these defects will not in the least detract from the book's practical value to those for whom it is intended, and we heartily commend it.

The Bulletin No. 1 of the Illinois Museum of Natural History among other interesting matter has a paper on the Botanical features of "Trees in Winter," by Dr. Brendel; "Parasatic Fungi," by Prof. Burrill; and a list of Illinois Orthoptera, by Dr. Cyrus Thomas.

Catalogue of A. M. C. Jongkindt Coninck, Dedemsvaart, Netherlands.—Mr. C., who has taken so excellent a part in introducing the *Gardener's Monthly* in the countries in the north of Europe, sends us his Catalogue of hardy herbaceous plants and other things, which we find very full.

Mr. W. T. Harding.—We are pleased to be able to say that this gentleman, who is so well-known to our readers as an agreeable and highly intelligent correspondent, and whom we know as one of the best of the many practical gardeners in this country, has been elected Superintendent of the new Cemetery at Upper Sandusky, which the citizens were so fortunate as to engage him to lay out last year.

The Gardener's Monthly.—The publisher asks us to make a note, thanking the many friends who have passed good words to him with their subscriptions, and he hands us the following as a sample of many. It is from J. C. A. of Henderson, Kentucky: "Enclosed is renewal for 1877. Your magazine is *indispensable* to me, and supplies valuable information which I could obtain from no other source. It frequently occurs that a single number contains *hints* worth more to me than a year's subscription."

The Editor appreciates these kind notices as well as the publisher. He thinks he is doing a useful as well as an agreeable work in editing such a magazine. If every subscriber were to send a new one to the publisher, it would of course be of no particular interest to the Editor, except to feel that all were working with him in the extension of horticultural knowledge.

Waterer's Rhododendrons.—We were astounded to read the following in Mr. Waterer's Catalogue, just issued: "Since my return I have noticed that the Rhododendrons exhibited by me at Philadelphia have been the subject of several articles in the American Gardening publications, the object of the writers being to throw doubt on the hardiness and fitness for the American climate of the plants grown at this nursery."

We venture to say that Mr. Waterer can point to no "American Gardening publications or any leading agricultural paper, if indeed, any paper at all, in which the writers exhibited any such "object."

American Gardening publications have made known that Mr. Waterer's Rhododendrons, exhibited at the Centennial, were hybrids of Rhod. maximum, R. Catawbiense, R. ponticum and R. arboreum, that the two last were not hardy in the Northern States, while the two former were; and that the *varieties* which had a preponderence of these two characters, and of which Mr. Waterer had many, were not hardy. There has never been anything said about the "hardiness and fitness of the plants grown in this nursery," but only of some of the varieties. And this, which was the thing said, *is true.*

Mr. Waterer was received on this side of the Atlantic with generous honor. A large house was built for his Rhododendrons, while no such privilege was accorded to American growers, who had collections *equal in value to his own*, but which were left to broil in the open, and terribly hot sun, even for America. No one objected, but all rejoiced, feeling that the excellent show the Waterer Rhododendrons made, were really increasing a taste, and helping themselves. Under these circumstances the effort of Mr. Waterer to make the English public believe that he is badly persecuted by American jealousy, is unworthy of the proverbial fairness of "John Bull."

We should hardly have thought Mr. Waterer capable of such a contemptible trade trick, had not the writer of this heard him boasting to a little circle in his tent that he had assisted some Americans in getting Rhododendrons into this country free of duty, when the United States Government expects to get a duty of twenty per cent. on imported ornamental trees and shrubs. If Mr. Waterer is not so finely moulded as to see nothing discreditable in transactions of this kind that may help his trade, we do not expect him to be very particular in his references to the statements of "American Gardening publications" if he is likely to be the gainer by it.

QUERIES.

Bees and Clover.—"Busy Bee," Baltimore, Md., writes: "I send you a slip from the London *Agricultural Gazette*, which contradicts the position you assume, that clover can be fertilized without the aid of bees. With two such distinguished scientists as Mr. Darwin, in England, and Prof. Gray against you in this country, are you sure your position is correct? Here is the extract:

"'Why has there been so little holly berry and red clover in England the past year? Mr. Darwin explains that bees were extraordinarily rare in the early Spring, and that without bees to carry pollen from the male to the female plant, neither holly nor clover can be fertilized. *The Spectator* goes further. It attributes the inactivity of the bees to conservative reaction, and suggests that they were exchanging their queen for an empress, or altering the labor laws to suit the drones, or honeycombing the hives under some impulse of sanitary panic, and so the clover and the holly flowers were sadly neglected.'"

[In one way we thank our correspondent for sending us this slip, as an impression is being created in some quarters that the writer of this, in his opposition to extreme views of insect fertilization, was doing unnecessary work, as no such extreme views prevailed. It is now said that the only point contended for was, that insects *may* "sometimes" cross fertilize flowers, and that when insects do not come about, the flowers *can* and *do* in most cases fertilize themselves. We see, however, by the extract, that this is not the view held by the *Gazette*, nor was it the view extensively held in this country prior to Mr. Meehan's work. Whatever may be Mr. Darwin's views, our correspondent does not do Dr. Gray justice, for he has recently explained his view to be that when the plants are not visited by insects, they are generally able, as a secondary resort, to fertilize themselves. In regard to the clover question, its not seeding at times is evidently due to impaired nutrition in the direction of reproduction, as explained in Mr. Meehan's Detroit paper.—Ed. G. M.]

HORTICULTURAL SOCIETIES.

COMMUNICATIONS.

PEAR TREE BLIGHT IN OHIO.

BY M. B. BATEHAM, PAINESVILLE, O.

No question relating to Horticulture or Pomology is of so much practical importance in Ohio, and the Western States generally, as that of the cause and prevention of pear tree blight. Many thousands of dollars are annually expended in the purchase and planting of pear trees, only to see them flourish for a few seasons, and then blacken and die, when they begin to give promise of fruit.

At the recent annual meeting of the Ohio State Horticultural Society, it was hoped that some progress would be made towards solving this vexed problem. As Secretary of the Society, and in order to save time in discussion, I gave a brief survey of what had been developed during the past year or two; first, reverting to the meeting of last year, when a gentleman named McCall was present, from Southern Ohio, who claimed to have discovered the real cause of what is known as fire blight. He had recently attended the meeting of the American Pomological Society at Chicago, and at his request a committee of that Society had been appointed to investigate his discovery during the next season, and in due time make report. He also wished that a committee of our State Society should be appointed for the same purpose—then if the discovery was found to be real, and of value to the public, the two Societies might devise some way by which he should be compensated. This was regarded as fair and just, and the committee was accordingly appointed. As Secretary of that committee, after making observations during the Summer, and consulting several of the other members, I was intending to make report at this meeting, but on writing to Mr. McC., inviting

him to be present, he informed me that he could not attend the meeting, and that he would prefer the report should be delayed for another year, as some gentlemen in his section of the State had promised to investigate the matter next season, and it was presumed that the committee of the Am. Society would also report at that time. I therefore consented to defer making a report, especially as I did not believe that the public would lose much by the delay. In saying this, however, I did not wish to be understood as intimating that there was nothing in the supposed discovery of Mr. McCall—for in my opinion the commencement of the blight may be often traced to the injury or cause assigned by him; but in a majority of cases no such cause can be discovered, at least in Northern Ohio, where my observations have been made.

I next called attention to the remarks of Mr. Meehan, of the *Gardener's Monthly*, at the last meeting of the Am. Pom. Soc., (see report of proceedings,) "on Fungi and Fruit Diseases," in which he says, "That fire blight is of fungoid origin, is now clear, from the researches of Dr. J. Gibbons Hunt of Philadelphia. He finds that a very minute fungus germinates on the outer bark, enters the structure, destroying the cells as it goes, till it reaches the alburnum, and then it penetrates clear to the pith, by way of the medullary rays, totally destroying the branch, from the centre to the circumference. . . There is no other conclusion here than that reached by Dr. H., that, in the true fire blight, fungi are the cause of the disease."

I remarked that, accepting this conclusion as we must, the honor of first demonstrating its correctness belongs to a skilled mycologist of our own state, Dr. J. H. Salisbury, now of Cleveland, whose researches on this subject, made in 1862, are published, with numerous illustrations, in the Ohio Agricultural Report for 1863. Unfortunately the wood-cuts illustrating the essay of Dr. H., were accidentally burned some years since, or our Society would have the substance of it republished. In examining the blighted branches with a powerful microscope, Dr. S. found them filled through and through with the mycelium of a peculiar fungus; the threads wound around in every direction among the woody cells. For several inches beyond the outward appearance of disease, dead lines, the size of a knitting needle, extended in the soft cambium, and in these the moniliform threads could be traced making their way among the cells. This plant, Dr. S. says, is strictly a parasitic fungus that affects organic tissues. It produces blight in twig of apple and quince, as well as pear, and often attacks the young fruit when about the size of a hazel-nut. This fungus belongs to the group Ascomycetes, to the order Perenosporiaceæ, and the genus Sphærotheca. The method of development of the fungus is fully illustrated by Dr. S. The fertile threads grow by pullulation (like bud-forming); the spores are produced on threads that rise above the surface. Sporidia and fertile threads were placed in a solution of sugar, and the next day numerous zoosporoid cells were moving about actively, and in a little time some of them voided other cells, all the while continuing a pulsating or vibratory motion.

Another and distinct form of fungus was observed and described by Dr. S., as found in the blighted branches after they had been dead some time, and along with the one causing the disease; but this second kind does not prey upon living tissue, and is a *result*, not a *cause* of disease. Dr. S. supposes that the sporidia of the blight fungus are in the circulating juices or sap of the tree, and under favoring influences of the weather, and a suitable condition of the cambium, are started into growth. He suggests, in the line of preventives, the use of sulphur in some of its soluble forms applied to the soil about the roots. But as some experiments of this kind have not been wholly satisfactory, and it is probable that the spores enter by the stomata of the leaves, or else vegetate on the outside of the bark, and then pass inward, it is suggested that washes containing sulphur, carbolic acid, or copperas be applied to the trees by syringing, early in Summer. Let us hear Mr. Saunders, of Washington, and others who have tried such washes, as to the extent and manner of their doing it, and the results. It is my belief that a reliable and cheap preventive will be found only in this direction.

PROF. BRAINERD ON SOLAR HEAT THEORY.

We also had, at our meeting, the somewhat remarkable essay on pear blight, read before the Potomac Fruit Growers' Association last September, by Prof. J. Brainerd, formerly of Cleveland, and now of the Patent Office at Washington, published, with illustrations, in the Ohio Agricultural Report for 1875–6. The Committee of our Society were of the same opinion respect-

ing this essay as was expressed by Mr. Meehan in the December number of the *Gardener's Monthly*, and that it was not worth while to occupy the time of the meeting by reading or discussing it—for it was evident to us that Prof. B. had not specimens of real blight under examination at all. He says that upon the closest scrutiny he could find no evidence that the disease was caused by fungus, or was of a fungoid nature; but he goes on to show that blight is a ruptured condition of the cells of the alburnum, which he believes is caused by the extremes of heat or cold; and farther on he says, what is known as fire blight is "caused wholly by excessive solar heat." Some of the alleged facts given in support of his theory by Prof. B. are remarkably wide of the truth. He says: "In the Spring of 1875, in Ohio, and along the lake shore fruit region, after the trees had put forth their leaves, a sudden fall of temperature from summer heat to 12 or 15 degrees below freezing, killed outright nearly every pear tree in that extensive district. (?) I examined many trees soon thereafter, and found the external appearances exactly similar to what is called fire blight."

As a fruit grower in the lake shore district in Ohio, I feel called upon to state that no such general destruction of pear trees occurred in this region, in that season or any other. It is well known that the Winter of 1874–5 caused extensive destruction of peach trees and grape vines, also of some pear trees, by killing of the roots, supposed to have been in consequence of severe drouth after a full crop of fruit, more than by the severity of the Winter. Many of the trees thus root-killed in the Winter, leaved out in the Spring, and of course the tops died soon afterwards. But I did not see a single pear tree that died, or had its top killed by the late freeze in the Spring, and the number that were killed in the manner before stated did not amount to more than 5 to 10 per cent. in any of the orchards within my knowledge. This is true of my own orchard of several hundred trees, also the larger orchard of S. B. Marshall, near West Cleveland, and the still larger one of Mr. Fahnestock, on the lake shore, near Toledo. In no one season has there been a loss of more than 5 to 10 per cent. of trees by blight, though a larger proportion have sometimes died from overbearing and winter-killing. Again, Prof. B. says in support of his solar heat theory, that pear trees standing on a southern exposure are much more liable to blight than those on a northern slope. This is also contrary to my experience and observation, and my orchard slopes to the south, while several that I know of slope to the north; but I do not believe this has anything to do with causing or preventing blight. Then, if hot weather is the cause, why is there not more blight in Kentucky and Southern Ohio than here in the North; and why was there not a general visitation of blight last June, when we had the hottest weather ever known in all this region?

EDITORIAL NOTES.

The American Pomological Society.—The biennial meeting of this body, which is always looked forward to with so much interest by horticulturists generally, will be held this year in Baltimore, on the invitation of the Maryland Horticultural Society. This will have its annual exhibition on the 11th, 12th, 13th and 14th of September, and the Pomological Society will take the last three days. Col. Wilder has recovered his health to a great extent, and will probably preside in person. We know the warmth of Maryland hospitality, and the intelligence of its horticulturists, and feel safe in predicting the event will be one "long to be remembered." Mr. Sands, of the *Farmer*, is a host in himself.

State Horticultural and Pomological Societies.—The Winter meetings of the various State Societies have been more than usually attractive, as we judge from a large number of reports in the newspapers of the various sections that have been sent to us, and which we hope to use as occasion offers. The meetings of the Western New York Horticultural Society, and Fruit Growers' Society of Pennsylvania, are particularly well spoken of by the papers, while those of the Western Societies are very fully reported in the excellent agricultural papers of that region. In our present number Mr. Bateham gives an abstract of some points of particular interest to our readers, that grew out of the Ohio meeting. The Germantown (Philadelphia) Horticultural Society holds monthly meetings, at which premiums are awarded for good plants; remarks on the plants present are made; an essay is read, and discussions follow. At the February meeting, Mr. John Savage spoke on the effects of various temperatures on plants, in a pleasing and instructive manner, and considerable discussion ensued. Among the plants on exhibition were several pretty specimens of Chorozema varium. Australian plants, as a rule, are the best of Winter flowerers, but do not get through our Summers well. This seems an exception, and should be in every greenhouse. There were hundreds of orange and crimson "butterfly" flowers on these plants. One of the best grown Callas we ever saw was on exhibition; that is to say, the leaves were not drawn up, but though strong, were as healthy as possible, and the numerous flowers were of a like character. There was also on exhibition a double variety of the "seed strain" of Chinese Primrose, almost as good as the old-fashioned Double white, which does not seed, and which no modern kind has exactly equalled, and the edges were beautifully fringed. The plants at these monthly exhibitions have no marks on them by which any one may know who they belong to. This is not any advantage. Instead of preventing dishonest judging, it favors it by making a cover for the unfair one.

THE

GARDENER'S MONTHLY
AND
HORTICULTURIST.

DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

Edited by THOMAS MEEHAN.

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FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

April is a good planting month. There is not much art in planting trees, though it is often made a mystery. Not to let the roots dry for an instant between taking up and planting, everybody knows, but everybody does not do it; in fact Everybody deceives himself. We have seen this distinguished individual leave the tops of trees exposed to the sun, with a mat or straw thrown over the roots; and think all was right, —or heel in for a day or two, by just throwing a little dirt over the roots. This is a little good; but Everybody's fault is, that although this may be ten minutes of good, he expects to get ten hours, or even ten days' value out of it, and thus he suffers more than if he had done nothing, because he forgets that the branches evaporate moisture from the roots in a dry wind, and the juices go from the roots through the branches very nearly as well as directly to the air from the roots themselves. So with heeling in. The soil is thrown in lightly, or at most just "kicked" down. "It is only temporary," very few of the roots come in contact with the soil. They can draw in no moisture to supply the waste of evaporation, and thus they stay day after day,— Everybody satisfied because he sees the roots covered, really worse than if they had been exposed. We have no doubt that *more trees are lost from imperfect heeling in* than from any other cause whatever. Of course, if the tops be covered as well as the roots, there is less waste of moisture and more chance of success.

This hint will help us in planting. That is, *pound* the soil in well about the fibres, so that they may be in close contact with it; or they cannot draw in the necessary moisture. Should the trees appear a little dry, or the roots badly mutilated in digging, or have few fibres, cut away the plant according to the severity of the injury. It is scarcely necessary to repeat that for this evaporation reason, it is best to plant trees when the ground is rather dry, because it then powders best in pounding, and gets well in about the roots. Wet ground *plasters*, and leaves large hollows in which roots cannot work.

We approve of thick planting. Trees grow faster for one another's company, and a place well filled at once, saves many years of time to see them grow. Those not wanted after the place has grown some, can be transplanted to other parts of the ground. How to remove large trees successfully, we have often explained. Where thick planting is to be adopted, of course care must be taken in locating those permanently to remain.

COMMUNICATIONS.

DECORATION OF GROUNDS, ETC.

BY WM. FLITTON, GARD. TO JNO. LEE CARROLL, ESQ., BALTIMORE, MD.

The Salvia spoken of on page 373, December number of the *Monthly, is* Salvia splendens, pure and simple. It would seem hardly possible to intensify the scarlet of Salvia splendens when in

good condition. Why should those particular beds grow so dwarf? To be honest, it is necessary in this connection to record a failure.

The beds in question were not intended for Salvia, and were filled in May with plants of a widely different genus, which however grew so slowly and became such bald-headed looking specimens that their presence amongst health and beauty could not be tolerated. Anticipating this failure, I propagated sufficient Salvia in April to replace them. The cuttings were taken from some large old plants wintered over, and were planted in the beds early in July. It was a struggle for life with them, but they held their own, however, and commenced flowering at the same time as did those which were well grown plants when put out. In this instance, that which was intended merely as a make-shift, happened to prove a success. I have no desire to repeat the experiment, however, but "necessity knows no law," and one never knows how soon it may be necessary to devise some means of hiding that which would otherwise prove a failure.

It is absolutely necessary to grow bedding plants. A tastefully arranged, well-kept garden, on what is generally understood as the bedding system, is most beautiful. We also need flowers to cut, and bedding plants generally produce bloom adapted for the purpose. But what valid reason can be given why this particular mode of decoration should be adopted to the exclusion of all others! Is there no beauty except in masses of brilliant color? True, we may arrange them with artistic taste, may tone down glaring colors, with neutral tints, so as not to offend the most fastidious; but congruity, "the eternal fitness of things" should not be lost sight of. Few indeed would place a grand piano-forte in a room with bare walls and floor, nor a carpet of velvet pile in a kitchen. Yet it is a fact well known to most readers of this periodical, that inconsistencies almost as glaring, are often perpetrated in what is considered to be the embellishment of grounds.

I would be understood here, not as seeking to depreciate the efforts of the owners of small country places to make their surroundings more home-like by planting a few flowers, flowering and evergreen shrubs, &c. This is as it should be, only more of it is needed by our rural population, and much more might be done in that line at trifling expense.

A short time since, the writer was called to visit a place where considerable expense had been incurred in improving the landscape. There was, previous to the *improvement*, a fine lot of old cedars, every vestige of which had been removed. The grove had been cleaned up "spic and span," not an Azalea nor a Kalmia dared show a spray. The lawn was sharply defined, the flower-beds far too numerous and too narrow. The herbaceous border was entirely ignored, of course, as being too antiquated for the "modern style of gardening, you know." Some Abies excelsa had been planted singly within six feet of the drive; and a few other shrubs, &c., were dotted about here and there, looking very much out of place. A great deal had been done, much of which, however, would have been far better let alone. In fact, we shall be making rapid progress towards our next Centennial, before some of the grand natural objects thus ruthlessly torn away can be re-placed in as noble a form. Yet this estate contains within itself all the diversity of hill and dale, were it availed of, to make the scene most beautiful. At the proper distance from the front piazza, where the drive could have been carried in a bold sweep around the brow of a hill, could have been placed some grand clumps of Geranium argenteum, Erianthus Ravennæ, Yucca filamentosa and Y. gloriosa, Canna, Caladium esculentum, Hollyhock, &c., &c. In connection with the above, could be used with charming effect Juniperus, Retinospora, Cupressus, Biota, Thuiopsis, &c. Away beyond these again should have been planted specimens of fine foliaged, weeping trees, &c., carrying the eye over a fine undulating surface to a higher hill beyond, skirted by a wood on the northern side, where might have been planted some fine clumps of Abies, Pinus, &c., perhaps fringed by European Larch; and all this beauty might have been had for very little more than it cost to destroy that which previously existed. As a country, we have something yet to learn in Landscaping and in Forestry. Could not the Granges do something to induce farmers and others to plant a few trees annually, both for ornament and utility?

Suppose the members of a Grange club unite together and buy a few thousands of—say Norway Spruce, of smallish size, and divide them proportionately. Being of somewhat rapid growth, if properly planted and attended to, the present generation would reap the benefit, while those to come would bless the memory of those who had beautified their surroundings, and at the same time the country.

THE WHITE WATER LILY. (Nymphæa Odorata.)

BY B. MANN, RANDOLPH, MASS.

If lovers of flowers only knew how easily the fragrant White Water Lily could be cultivated, we are quite sure these Lilies would be grown far more than many other less fragrant and beautiful flowers that take more time and trouble to cultivate. These Lilies once planted in a pond or small stream (they will bloom more profusely in shallow water) that does not entirely dry up in Summer, will need no further care, and will increase from year to year. People that have not the facilities for growing them in ponds and streams, can have their Lily gardens in tubs and aquariums where they can admire and gather the most fragrant and beautiful flower that grows on land or water.

CULTIVATION.

In Tubs.—For a tub, take a strong barrel, free from tar oil or salt, saw it in two, fill this one-third full with fine black garden soil, or meadow mud if handy, plant the roots in this mixture, covering them two inches deep, add water gently so as not to disturb the roots until the tub is full. This is all the care needed—always keep the tub full of water. Set this on a brick or board platform in any place you desire. The tubs with their contents should be placed in a cellar during the Winter, kept from frost, and not allowed to entirely dry up.

For Ponds and Streams.—Tie a stone close to the roots, large enough to sink it, drop this into the pond or stream where you wish them to grow.

For Aquariums.—Put in five inches of fine black loam, cover the roots one inch deep in this, and sift on fine sand enough to entirely cover the loam.

MAGNOLIA GLAUCA.

BY SAMUEL PARSONS, KISSENA NURSERIES, FLUSHING, N. Y.

In the February issue of the *Gardener's Monthly*, I notice a very clear and definite answer, in the affirmative, to a query concerning the possibility of grafting Magnolia glauca on M. acuminata stock. Your statement is unquestionably correct, but since you do not seem to rest your position on positive experience, I should like to add a testimony that comes from actual observation.

For years, I have been accustomed to see M. glauca grafted successfully on both acuminata and tripetela, to the great advantage of stateliness and general symmetry. Nor is it unnatural that an alliance should be made with facility in the case of two American species, when Japanese and Chinese Magnolias do so well on the same stock. Allow me to enter a plea for a wider appreciation of this sweetest, and in some senses best, of American Magnolias. No plantation of shrubs can afford to be without its fresh and charming attractions.

MAGNOLIA GLAUCA.

BY T. C. MAXWELL, GENEVA, N. Y.

In the February number of the *Gardener's Monthly*, G. W. T. asks in regard to the M. glauca worked on M. acuminata, and you answer that you "know of no cases," "but think it would do well." Remembering an article in the *American Journal of Horticulture* by Dr. J. P. Kirtland, I immediately turned to it, volume first, page 177, and found it so very interesting, I can but think you will be glad to give it to your readers. Dr. K. says:—"A glauca standing in my grounds, started from a seed in 1842, is now (1867) seven feet high. The trunk eighteen inches above the ground, measures six inches in circumference; and its top extends into several lateral branches. A dozen or two of inferior flowers are annually produced. Its aspect is that of an old and decrepit shrub, unworthy of attention.

"In beautiful contrast and contiguous to it, may be seen another glauca, with a large and spreading top, more than twenty-one feet high, with a body thirty-seven inches in circumference at its largest expansion. Its leaves and flowers surpass the others in size, numbers and perfection. During a period of about six weeks, in the months of June and July, it puts forth daily a profusion of pure white blossoms, the neat and chaste appearance of which by day, and the agreeable odor at evening, excite admiration. At the approach of night, the perfume mingling with the falling dews, is disseminated a great distance along a thronged public thoroughfare, and elicits many exclamations of wonder and surprise, uttered in as many varied accents as were heard from the readers of the epitaph of 'Poor Yorick.' This tree is probably the largest specimen of the glauca in the Union, certainly in the more northern States; and it

illustrates both the feasibility and the advantages of employing the acuminata for the stock in propagating this species. It originated from a bud, cut from the seedling glauca just described, when that was four years old. The bud was inserted into a young cucumber tree of a similar age, in the Summer of 1846, similar soil and cultivation have been afforded to each. The one is a mere shrub that has already passed its maturity; the other a good-sized tree, vigorous and healthy, annually extending as large a growth as in its early years."

VARIOUS TOPICS.

BY JOSIAH HOOPES, WEST CHESTER, PA.

I am pleased to hear the Sciadopitys verticillata is succeeding so well in the vicinity of Boston, thus giving us incontrovertible evidence of its hardiness at the North. A specimen in my own collection, some ten years planted, has never been injured in the least.

The Thuja Standishi, formerly Thuiopsis, is also equally hardy, and I think will form a very beautiful tree when well grown.

Whilst on the subject of conifers, allow me to call the attention of planters to three of the newer species of Abies or Spruce:—A. Alcoquiana, A. polita, and A. microsperma, all of which are from Japan, and appear perfectly adapted to our climate. In addition to their hardiness, they are all unexceptionally beautiful and distinct.

Please say to G. W. T., who inquires about grafting Magnolia glauca, that it succeeds well upon the M. acuminata, but is somewhat more difficult to work than most other species. The growth is greatly accelerated, and the foliage increased in size, at least for a few years after grafting or budding.

The Castanopsis chrysophylla, like almost every Californian tree or shrub that I have tested, positively refuses to live here for any length of time. It literally burns up beneath our hot suns. Even in the shade, some fungus spreads over the foliage, and the shrubs rapidly shrivel up. The Winter, however, puts a quietus on all; so it does not much matter about the Summer ills. I regret that it is so, for a more beautiful foliage I scarcely know among our American shrubs.

We have had Fuchsia procumbens for eighteen months past, but have so far been unable to bloom it. Perhaps now we may succeed with the older plants.

NOTES BY CHARLES DOWNING.

AQUILEGIA CALIFORNICA.

Your correspondent, W. C. L. Drew, says this variety has not yet been introduced, but Wm. Thompson, seedsman, of Ipswich, England, sent me seeds of it some twelve years since, which grew and flowered freely, and is the same as described by Mr. Drew.

SPIRÆA PALMATA.

I received this of Thomas Hogg, Sr., of New York, over twenty years since as Spiræa Americana, but soon after when in bloom a botanical friend, in looking over my collection, pronounced it S. palmata; it grows a foot higher than S. lobata, the spikes of flowers larger, of a brighter color, easily cultivated, and worthy of a place in any collection.

ACONITUM JAPONICUM.

This is not very new. I grew it many years since; it grows to the height of four feet, stiff and erect; has palmated shining foliage; blooms late, and although desirable in a large collection, is not as showy as some of the earlier varieties.

MAGNOLIA GLAUCA.

G. W. T. asks what would be the effect of grafting M glauca on M. acuminata. I believe Dr. Kirtland, of Cleveland, Ohio, was successful in grafting and budding this and other kinds on the acuminata stock, and gave an account of his mode of performing it in the *Journal of Horticulture* a few years since. I would recommend G. W. T., and other planters to obtain M. glauca longifolia, a seedling of the glauca, but more vigorous in growth, larger and more glossy foliage, and more desirable every way, and should be more extensively planted as an ornamental tree.

A LITTLE ALPINE GARDEN.

BY MRS. C. S. JONES, MONROE, MO.

For many years past "rock-work" and "rockeries" have become so popular as a means of embellishing pleasure-grounds, that persons deciding to improve their surroundings, invariably attempt some arrangement of this kind as an aid thereto. "Rock-work!"—"Save the mark!" Why, almost every absurd conglomeration of stones, shells, rocks, burrs, roots, and (shall we admit it?), masses of crockery, glass, and china, that we see exposing their dry, parched sides to view, is dignified by the term;

whereas nine attempts out of ten are mere abortions, as may be clearly proven, if we will only examine the subject and ascertain what we really mean by attempting this class of work.

The object of rock-work certainly is, or should be, an imitation of nature; by obtaining with proper soil and situation, such growth and exhibition of certain interesting plants, which in their wild, natural state resort to extremely rocky and stony places, seeking a subsistence; where strong, rampant vegetation would stand no chance; by cultivating those lovely mountaineers, which grow in all their delicate greenness and brightness far above the limit of shrubby and herbaceous vegetation, in regions where blasts of cutting wind and intense cold prevent their tiny heads from rising more than an inch or two above the earth.

Now, such are the Alpines; and though the situations in which the Alpine flora luxuriates can only be copied on a very lilliputian scale in our American gardens, still the conditions in which they delight may be imitated to perfection here, and it is from the fact of succeeding with a number of this class of plants that I feel anxious to urge their culture upon our flower lovers; for never will they find a specialty better worthy a trial, nor a pet that will repay them with such constant returns of beauty.

The beds I am about to describe are appropriate alike for the wide area of the country lawn or the contracted court-yard of the city or suburban home; in the one case being extended into wide planes and sheltered nooks, high peaks and sunny knolls, with here a little bit of water, and there a rocky pathway, winding in and out at "*the foot of the* mountain." Alpine shrubs and bushes grouped here and there on the mountain-tops, the sides and peaks of which may be "*snow-capped*" with "Spar.," while tiny Swiss chalets dotted about on the sides, or grouped together as a hamlet in the valley, may serve as bee-hives or bird-houses. Here by making wide slabs of stone, to overhang some miniature lakelet, with sunny banks and shaded, little valleys, every sort of aspect or nook that could be desired for a particular plant is at hand, and thus vegetation of the most diverse character is accommodated within a very narrow space by merely preparing soil adapted to the wants of special plants. In the other case, a little bed is dug out to the depth of two feet, with an outlet from the lowest point to insure perfect drainage in this cavity. Coarse stones, lime or rubbish must be placed to a depth of from six inches to one foot; upon this arrange large stones, old stumps and trunks of trees, planted firmly on beds of garden soil or stiff loam. Leave many hollow spaces for the plants, into which pack a mixture of leaf-mould, clean sand, coarse gravel (or crushed stones) and peat (or if this is not obtainable, cocoa-nut fibre or refuse will answer), and a little good garden loam, or soil from an old hot-bed, making a coarse, gritty mixture, in which Alpines delight to grow. The requisites of health to these plants are pure air, bright sun-shine (during a portion of the day at least), thorough drainage, loose gritty soil and constant moisture. With these, your plants will grow luxuriantly, excepting during cold Spring or open Winter weather, when, being deprived of their natural covering of snow, with our thaws and severe frosts, they are greatly injured; but this evil may be remedied by fastening a sort of open frame across the bed and covering with canvas tacked to the top, forming an artificial snow.

Around the edge of the bed arrange rustic stones and roots of various sizes, making as much pleasing diversity as possible, so as to raise the bed about two feet above the surrounding turf. The large stones, slabs, trunks, &c., in the centre should crop out from the soil in true rustic fashion; of course any regular arrangement would tend to ugliness, as no one spot should resemble another, and the dip and connection of the stones with the soil should be so arranged that the soil will not become washed out with rain or watering. Here Sedums and Sempervivums, such Saxifragas as cœsia Rochelliana, such Dianthuses as alpinus and petræus, mountain Forget-me-nots, Gentians, little Spring bulbs, Hepatica triloba and a good, wide clump of the Iberis. Pinks will thrive here and do wonderfully well, while the blue tint of the foliage will form charming contrasts with the deep green of the "mossy Saxifrage." The Aubrietias will run up and down the chinks and form lovely mantles for the jutting rocks over which they will climb and ramble; Alyssum saxatile will round into a dense, impenetrable clump, while Arabis lucida, A. procurrens var., and Festuca glauca, with all the Oxalis, silvery Artemisias, dwarf Gnaphalium, Silene alpestris, Dianthus petræus, Achillea tomentosa, Campanulas (dwarf), Erica carnea, Linaria alpina, Phlox verna, frondosa and stolonifera, Alyssum spinosum, Veronica candida and saxatilis. Cerastium

tomentosum, Primula veris (cowslip); Bellis perennis (English Daisy); double white daisy, and B. Victoria. On dry spots use the Echeverias, which, being natives of arid countries, will thrive best if planted in some hot, parched places, where anything else would fail. E. retusa floribunda, metallica, glauca, rosacea, secunda splendens, secunda glauca, splendens and atropurpurea; Koniga (var.) (variegated sweet Alyssum), in shaded spots Lysimachia nummularia, Linaria cymbilaria; Myosotis palustris, p. alba, M. semperflorens, M. dissitofolia; Nertera depressa, one of the most charming of Alpine plants. The creeping, thread-like stems are thrown out in great profusion until a tangled mat is formed, which is covered with tiny dark green leaves, forming a dense tuft, on which the brilliant orange-scarlet berries rest, the rich fruit forming a striking contrast to the foliage. Nierembergia rivularis, another creeping beauty with lovely white flowers; N. gracilis; Othonna crassifolia, of Sedum-like appearance, has small, yellow, tassel-like flowers borne in great profusion. Mikania violacea has striking foliage of a purplish-green color and velvet-like appearance, with lining like crimson satin; a charming plant, which roots freely. Micromeria Douglasii, mule pinks of various kinds. Mesembryanthemums, which will endure the hottest sunshine, and grow in very shallow soil. M. cordifolium, M. cordifolium variegatum, M. glaucum, M. blandum, M. deltoidum, M. nitidum, are all valuable for such beds, and once obtained, may be easily preserved during the Winter for use the ensuing season. The Anagallis is one of the most attractive of Alpine plants, and both grandiflora, cœrulea and sanguinea will form lovely clumps. Calandrina grandiflora and umbellata will cover hot places with brilliant pink and crimson carpets, while the Cerastiums and other silver-leaved plants will form charming contrasts with Scypanthus elegans, Tagetes signata pumila, Veronica Syriaca and Euphorbia variegata. Fenzlia, Grammanthus gentianoides, Gysophila muralis and paniculata.

Of the Sedums and Sempervivums, our leading florists have good selections, and the best way is to procure the entire set for a specified price. The plants I have named are many of them not strictly Alpines, but of such character as to mingle beautifully together, and by examining such catalogues as are published by our most reliable florists and seedsmen, it will be discovered which may be raised readily from seed and of which it is best to obtain plants.

With these points carefully considered, the most charming results will ensue from such beds as I have here described; and there are hundreds and hundreds of dwellings in and around our cities, from the windows of which such little Alpine Gardens would appear attractive and refreshing to an eminent degree.

NOTES ON LITTLE KNOWN PLANTS.

BY WM. S. CARPENTER, RYE, N. Y.

I noticed in the December number of your valuable magazine an inquiry in regard to that beautiful conifera, Sciadopitys verticillata. I imported a specimen of it fifteen years ago, and regret to say, after a struggle of some three or four years with our uncongenial winters, it died, notwithstanding I had given it some protection. I have not had the courage to try it again. (You might venture again.—Ed.) I do not think it should be recommended as hardy, although it may succeed in some favored localities; like many other beautiful evergreens that I have planted, which have been and are still recommended as hardy. I regret that I could not have saved some of the following, which were well cared for, giving the most of them some protection, but nearly all have disappeared; some did not survive the first winter, others struggled on for a few years; but all must be rejected for the locality of Eastern New York. Abies grandis, quite distinct from lasiocarpa, Parsonsiana, or Lowi—the latter proves hardy, Abies bracteata, Abies canadensis compacta, Abies Douglasii, Abies Morinda, Abies Pinsapo. This last beautiful evergreen I have tried several times, but shall have to give it up. Cedrus Atlantica, Deodara, Africana and Libani, all tender. Cephalotaxus drupracea, Fortuni and robusta—all dead. Cryptomereas japonica, elegans, Fortunii and nana—all beautiful, but not hardy. I imported twelve varieties of Cupressus, not one of them now alive. I found that by screening this variety from the sun, through March, I could preserve them. It is to be regretted this elegant variety of conifera is not more reliable. C. McNabiana is perhaps the most hardy of the Cupressus. Most of the pines that I have tried prove hardy—the exceptions are, Australis, Torryana, maritima, insignis, and perhaps tuberculata. Pinus Fremontiana, I regard as the hand-

somest hardy pine of North America. Next I would place muricata and Coulteri. We have now had an opportunity of testing some dozen varieties of the beautiful Retinospora for a number of years, and it is most gratifying to be able to say, that with one or two exceptions, they are as hardy as an oak; ericoides needs some protection when young. Two varieties lately introtroduced, Retinospora pisifera lutescens and R. squarrosa glauca, are the most beautiful I have yet seen. Another beautiful class of small evergreens should be planted with caution—the Taxus. But two, out of some twenty varieties, which I have tried, can be relied on, Taxus canadensis and Washingtoni—the last named is tipped with gold, and with me as hardy as an oak. Several others that are very beautiful, Taxus baccata aurea, Taxus elegantissima and Taxus japonica, and we may add cuspidata, with slight protection; may be preserved. The Biotas are so handsome that it pays to give some of them a slight protection, otherwise most of them will suffer when young. Elegantissimum, I think the handsomest of all, and perhaps the most tender. Biota semper aurescens and Zuccariniana are of recent introduction, and with me nearly hardy, both beautiful and worth trying. Nearly all the Thuya occidentalis, I think are hardy, if we except the gigantea, which needs protection when young.

Thuiopsis borealis, variegata and dolabrata passed through several Winters, and I had great hopes of these beautiful trees, but had to give them up. Not one is now left; the same statement will apply to Libocedrus decurrens. This would seem to be the dark side in experimenting with evergreens; but I wish to say that there are two sides to this question, and I propose at a suitable time to give the other side, which is a bright side, and fully compensates for all that would appear to be disappointment in experimenting with the beautiful Conifera, now obtainable. One word in regard to Sequoia gigantea: it does not give satisfaction; a beautiful tree where it does well, but will not flourish here. I am speaking for Eastern New York, latitude about 41°.

I notice an enquiry in your last issue in regard to the Arundo conspicua. I imported this last year, and think it promises to be valuable—quite as handsome as the Gynerium argenteum. and I think much hardier. I hope to flower the new Gynerium carmineum Rendatleri, the coming season. This was sent out by Van Houtte two years ago, with a fine description. The panicles measure more than two feet in length, are of a bright carmine rose color. The flower stems attain the height of ten feet, and are described as making a magnificent show, quite as hardy as Gynerium argenteum. There is another variety which I have ordered, described with foliage completely bordered with gold color. I hope to report favorably at some future time on this new Gynerium. Erianthus Ravennæ is a very ornamental grass, and when well established will, I think, prove quite hardy.

[Mr. Carpenter's notes of his experience are valuable and welcome. It shows that people cannot plant these things under ordinary circumstances, and yet feel sure of their living. It must not be forgotten that in a state of nature, evergreens are gregarious; growing together, they shelter one another. In the highest northern regions the young of pines spring up under the protection of other things. If put out in the open, exposed on all sides to the wind, the sun, and the *weather* in general, the hardiest of even these hardy things have a hard time of it. When large they can take care of themselves—when young they cannot. There are scarcely any of the kinds which failed with Mr. Carpenter, but which we have seen doing well, not only in his latitude, but in latitudes much further north. It is a question not of latitude, nor of temperature, but of protection from wind when small. By protection we mean not merely the placing of a few branches around a weak plant, but the protection of dense masses of trees and shrubs.—Ed. G. M.]

EDITORIAL NOTES.

Pruning Coniferæ.—A discussion is going on in the Belgian journals, as to whether or not it will do to prune coniferæ. An affirmative answer would have been given by any American gardener since the establishment of the *Gardener's Monthly*. We remember that an article in regard to pruning evergreens, in our first number created marked attention. There is no evergreen but is freely pruned now.

The Japan Maples.—Mr. S. Parsons speaks well of the Acer Jap. sanguineum and A Jap. atropurpureum. Of the last we can say of our own experience, that it is an excellent addition to our list of ornamental trees.

New Rose. Beauty of Glazenwood.—Mr. Saul has a beautiful chromo in his Catalogue. It is a yellow bud striped with crimson.

The Hepatica.—A remarkably beautiful blue variety of our native Hepatica or Liverwort, is figured in the *Belgian Horticultural Review*. Our lovers of herbaceous plants should examine our woods for new forms,—for there are generally as good varieties from seeds sown by nature, as by the gardener, but they get crowded out. There are under culture, rose colored and white varieties, and double ones of all, though the double white seem very scarce.

QUERIES.

Magnolias.—W. F. B. says:—"I notice in the *Gardener's Monthly* for February, an inquiry about grafting the Magnolia glauca on the M. acuminata. If you refer to the *Horticulturist* for 1857, p. 218, you will find a very interesting article from J. P. Kirtland, of Cleveland, Ohio, on the acuminata as a stock. I believe the article promised to follow on the methods of grafting, never appeared."

Lily Culture.—We have the following letter from Messrs. Krelage & Sons, of Haarlem, Holland. As we could not lay our hands on the lists they refer to, we publish with pleasure their letter instead.

"In the February number of your *Monthly*, at page 37, you give a note on a Belgium Lily catalogue (we suppose it is Mr. Fraelmen's) which contains 75 sorts and three of them offered by the 1000. Allow us to observe that we have sent you this Autumn our special list of Lilies, containing about 250 species and varieties, also quoted per piece, per dozen, per 100 and per 1000, and among which there are about 40 quoted by the 1000. Our collection of Lilies is certainly the largest and best assorted nursery collection in Europe if not in the world. We edited this Autumn in English (with special American edition), French and German, a provisional descriptive list, and we find that our notes have already been copied in several other lists. We sent you a copy of this set of catalogues (320 a, 321 a, 322 a, 323 a); perhaps you will find it useful to give a note of them in your paper. To the trade we publish separate catalogue. Trade prices of Lilies for America are to be found in 318 a."

GREEN HOUSE AND HOUSE GARDENING.

COMMUNICATIONS.

RHODODENDRON HOUSE.

BY S. B. PARSONS, FLUSHING, LONG ISLAND.

Some months since I expressed in your columns my opinion based upon an experience of some thirty years, that scarcely a dozen sorts of Rhododendrons could be pronounced absolutely hardy under all circumstances, and that many of the high colors exhibited at Philadelphia were not among those sorts.

To that opinion I still adhere, notwithstanding an occasional success with highly colored sorts in ravines and sheltered places. Exceptions do not prove the rule, and the rule is that those sorts are not in this country reliable under all circumstances. My assertion is strengthened by the utterances and correspondence of friends in different sections who coincide with me in this position, and whose history of Rhododendron importations is a history of disappointments. The few sorts which are perfectly hardy give us a variety of color and many charms, but we cannot afford to lose the exquisite tints which belong to a class formed by Concessum, Album, Lady Cathcart and others.

I am frequently asked, how then can these be enjoyed? Simply by protection in some shape, and this can be given most satisfactorily by a cheap house. No artificial heat is required, and only a protection from exciting sun and cold wind. I will describe the cheapest form I know;

those who are willing to erect a more costly structure can readily do so. I would give such a house a span roof with a pitch of 30° and rafters twelve feet long. The sides of the house should be six feet high and the centre twelve feet. The ground surface should be twenty feet wide, outside measurement, and in length fifty feet or more as desired. The sides can be formed of locust or cedar posts, set not less than four feet in the ground and four feet apart. The centre can be sustained by a ridge pole of planks or wall strip resting upon posts six feet apart. The rafters can be simple joists four feet apart, nailed on the ridge pole and on a plate which is itself spiked into the tops of the side posts. We thus have the finished skeleton of a house. It must now be covered in some way which will enable it to be conveniently stripped. Tongued and grooved shutters, six by twelve feet, with battens, can be laid upon the rafters and kept in place by common hooks and staples. It would be better i the tops of the rafters could be ploughed out a little to carry off the water which would fall between the shutters. The roof being thus formed, the ends can be covered in after the same manner in sections. On the sides, every third space can be covered in with a glass sash and the remainder with wooden shutters, it being borne in mind that protection from the excitement of light is a great aid to protection from cold. A little salt hay or other litter could cover the small space between the shutters and the ground. Every fine, still day ventilation will be needed, and this can be given by a door in each end, guarding however against sudden changes. Through the coldest Winter a house of this kind will be found a sufficient protection for all those Rhododendrons which so charmed every one by their colors. In April, when danger from late frosts is not to be apprehended, the house should be completely stripped of all shutters and sash and left a simple skeleton. The plants will thus be fully exposed to the pleasant sun, and air, and influences of Spring, and will acquire strength for their subsequent blooming. About a month later, when the flower buds are fully developed and show signs of bursting, the roof should be covered with shades of lattice work. The cheapest mode of making these shades is with furring strips or shingling lathe joining a frame four by six feet and plastering lath nailed across an inch apart. Those who wish something nicer which can be painted, can have similar strips sawed out at the mill and planed. This partial shading prolongs the season of bloom, allows the air and sifted sunlight to enter freely, and protects equally against the burning rays of a Summer sun, or the dashing torrents of a Summer rain, either of which in the open air will destroy the finest bloom in a single day. It is better than a tent because it is not so close for the observer, while it affords that subdued light which in a tent develops flower tints so charmingly. A covering of this kind during bloom would greatly prolong the season of even those sorts which are entirely proof against the severest cold. A day of intense heat or a pouring rain cannot then destroy the pleasure for which a whole year has been waiting. When the bloom has passed, this shading should be removed and the plant thrown open to the sun, wind and rain. Without the sun, flower buds would not form readily, and it is a great mistake to plant Rhododendrons in the shade. If ivy or other fine climbers have been planted inside the posts at the side, they can now be twined around them, and if sufficiently luxuriant can be carried around the rafters or festooned from them. The rich, glossy dark green foliage of the Rhododendrons will give pleasure during the Summer by its contrast with other shrubs, and the covering can be renewed again late in November, after a few good frosts have matured the wood and hardened the plants for their Winter's rest.

This house may be varied to suit the taste of the builder, bearing in mind the three essential elements:—darkness, and protection for the dormancy in Winter; shade for the bloom in Summer; and open air and sun for the growth. A house of this kind can be made available for other plants.

There are many who are fond of the Laurustinus Portugal Laurel, Araucaria, Evergreen Magnolias, Holly, and many other broad-leaved evergreens, which are hardy in England but tender here, and who keep such in a greenhouse or cellar, planting them out on the lawn every year. The subterranean dampness of a cellar is unnatural and the influence of a greenhouse exciting. These evils and the frequent transplanting are adverse to the production of good specimens. In a house of this character they could be allowed to remain, could develop into luxuriant and beautiful forms, would make a delightful promenade for all the members of a family, and charm all beholders by the beauty of its bloom and the richness of its foliage.

THE DUCHESS OF EDINBURG ROSE.

BY SAMUEL SMITH, NEWPORT, R. I.

That there is a false Duchess of Edinburg Rose in the market I have proof, and to show you the difference in the buds, I enclose you the true rose, also the false one. These plants were imported by me from England. I got twenty-three of these in one hundred plants.

I believe that the false rose is a sport, as I do not know it, nor can I find any one who does know it. However this may be, I would advise all who have the wrong variety, if like mine, to preserve it; for when well grown it is a beautiful rose, as you will see by the bud sent. The habit and foliage of the plants are very like the true Duchess. It differs only in color.

[Mr. Smith is right, evidently. The one is a sport of the other, and propagators will have to watch it just as they have to watch Coleus Chameleon and other things.—Ed. G. M.]

DRAINAGE.

BY RAMBLER.

There has been of late some writing, and a great deal of talking in regard to drainage, and without attempting to condemn or uphold the same, permit me to ask—does nature justify drainage? We are all aware that it is most essential in artificial culture to follow the examples of nature, and we are also aware that no farmer would for a moment think of putting drainage under the top soil of his fields before planting grain, though perhaps many a grain-field would be benefited by judicious drainage. But, on the other hand, in what conditions do we find the most luxurious tropical vegetation? Is it on hard, parched and half baked earth under the full rays of the meridian sun of Summer? No! In situations moist and shaded, where the plants spring up annually among the decayed herbage of the previous season, when the decomposed mass is free and porous, allowing the accumulated moisture to pass off in season of growth. How is it possible for the air to circulate if the pores are blocked with water, or where the ball is as hard as a lump of clay; besides, the water itself will not circulate through a ball of earth without a free circulation of air. I have reflected a great deal on this subject of late, and have come to this conclusion, that our dry atmosphere is "argument enough" in favor of drainage. Plants can be watered freely; the water percolates freely through the soil, the air follows and keeps the moisture suspended in the mass.

The above, Mr. Editor, are my views, but if I have made any misstatements, I shall be glad and thankful to be set right; neither am I too prejudiced, or adhere too zealously to an old principle or custom to be convinced when a better one is offered. I have neither taste nor talent for recriminating controversies, being convinced that those who resort to such quibbles, manifest a disposition for a controversial triumph more than for the elucidation of truth.

HEATING SMALL VEGETABLE OR GREEN-HOUSES.

BY AN OHIO LADY.

In the January number of the *Gardener's Monthly* I saw a communication in reply to some one having asked the expediency of warming a small vegetable-house with a coal stove, in answer to which it was stated, "that it would not be satisfactory."

I will give a little experience of my own. Like many others, I long wanted a greenhouse, or more properly, a conservatory; but the first obstacle which always arises is, the difficulty of heating a small house. With a conservatory attached to the dwelling there is always more or less danger from heating by flues, and besides, they are extremely unsightly things. Heating by steam is too expensive. More than three years ago I determined to try one heated by a coal stove.

My conservatory opens by a glass door directly from the sitting-room. It is a lean-to, 12x20 ft., looking toward the south and protected by the house on the north and most of the west side. I have wooden shutters made of flooring-boards to use in extreme weather, and it is heated by a base-burning soft coal stove. With care, there is but little dust. I have a cistern in the house, with a force-pump, hose, and sprinkler, which is very convenient, and it can all be watered in two minutes. This has been almost indispensable hitherto, as I was obliged to depend upon

sprinkling the floors, &c., for moisture, for of course the heat would naturally be dry.

Last Fall I tried an experiment of having a galvanized iron circular tank of about twelve gallons capacity, placed back of the stove, with ¾-inch gas pipe attached to the tank and running through one of the doors into the fire-pot of the stove, and with an elbow returning through the same door and passing under my little propagating bench six feet, and then coming back and entering the tank *above* the first pipe about eight inches. I thus have a body of water always hot—many times, with a large fire, nearly reaching the boiling point—which gives out moisture sufficient to keep the plants in good health, entirely free from red spider; and the circulation in the pipes gives additional heat. It has given entire satisfaction throughout these unusually extreme winter nights. At night when the mercury goes to zero, our man awakens and stirs out the ashes and re-fills with coal about one o'clock, but ordinarily it needs only to be attended to late at night and early in the morning, and it has kept my tenderest plants safely. The mercury perhaps twice only has gone below 40°, and usually ranges from 40° to 60°. I do not pretend to keep "stove" plants, but, for miscellaneous plants, I have no hesitancy in recommending my plan.

I have now blooming "Passiflora princeps," "Thunbergia Harrisi," "Clerodendron Balfouri," and others, and I should like a white winter-blooming vine. Would I succeed with "Stephanotis floribunda?" Dreer does not give it as a "stove," but he does Clerodendron B. Another experiment I have tried successfully. I take my little machine oil can and treat the "mealy-bug" to a drop of coal oil, which is sure, and so far, harmless; even the Rex Begonias are uninjured by it.

[We have great pleasure in giving this letter to our readers. It is just the sort of practical experience hundreds want to know about. The success with the coal stove is particularly encouraging, as so many can have flowers this way to whom expensive heating arrangements are out of the question. Our correspondent, in sending the article, modestly asks us not to "put her in the paper," whatever we do with her experience, and we have respected her wishes accordingly. Stephanotis floribunda would hardly flower in Winter in such a house. Rhyncospermum jasminoides, as a white climber, would be better.—Ed. G. M.]

LA BELLE CARNATION.

BY H. E. CHITTY, BELLEVUE NURSERIES, PATERSON, N. J.

In reply to Mr. Lonsdale's reference to my remarks on this plant, which appeared in the *Gardener's Monthly*, January, 1875, I believe I can truly say that I have no cause to change or reverse my opinion as then expressed. But all depends upon the manner in which the plant is grown—if stopped and pinched back and otherwise treated as the ordinary American varieties are managed for Fall and Winter flowering, it will not flower, but if allowed to grow its own way with simple training, or provided with necessary support and ordinary liberal treatment in regard to soil and pot room, it will flower early in the season and abundantly, and when so grown and flowered, I have no hesitation in saying that it is the most perfect, largest and purest white Carnation that we have, and I believe all these good qualities are freely conceded it in England where it originated, and where it has prominently figured at exhibitions during the last two or three years.

During 1875 we grew large numbers of this plant in 3, 4, 5, and 6-inch pots, and the plants of sizes to suit all kinds of trade. The smaller sizes were freely stopped to keep them within bounds for shipping purposes, as were also many of the plants in 6-inch pots. These last named that were left over with us, flowered sparsely during the following Spring, but plants in 6-inch pots that were not stopped at all, nor had their growth interfered with in any way, but were supplied with sticks and tied up, commenced to flower early in September, and flowered throughout the Fall, Winter and Spring; they were in fact in flower long before Degraw as ordinarily treated commences to flower, and continued to flower through a period quite as extended.

There exists quite a diversity of opinion regarding this plant, and as is usual in such cases those are best pleased who have been most successful with it. Of course a carnation that will not flower is utterly worthless, but I am fully convinced that if florists will take cuttings of this variety any time during the Winter and grow the plants through Spring and Summer in pots, giving good soil and pots not less than six inches in diameter and not stop the plants, and during the Winter keep them in a low temperature, say 40° or 45° as a maximum, they will have but little cause for complaint. In a high tempera-

ture this Carnation makes a small, weak, wiry growth, and produces small flowers, and of those quite few; but in a low temperature as stated above, the growth is exceedingly robust and short jointed, the foliage large, of a rich glaucous blue, and the flowers large, perfect, and of the richest clove fragrance. I have gathered hundreds of flowers of this variety, each one a perfect rosette two and a half or three inches in diameter, and this, notwithstanding its having been described in some catalogues as "a variety having rather small flowers." As far as my experience goes I find a high temperature injurious to the Carnations generally, but more particularly is this the case with the true, or perpetual flowering varieties, to which class the La Belle belongs, and I find the old variety called "La Purite," produces flowers of a much richer color, double the size and double the quantity in a temperature during Winter of 45° or 50° than they do in a temperature of 65° or 70°. Carnation growers cannot have failed to observe the great change which takes place in their planted out Carnations as soon as the cool dewy nights of August and September occur; they seem all at once to assume new life, making vigorous shoots and in flowering plants the brilliancy and size of the flowers are greatly increased; after a while the plants are lifted and either potted or planted out in the houses, and subjected to a high temperature during the coldest part of the year, and if we find a variety that will not flower freely and give the very best results under this unnatural treatment, how ready we are to pronounce it worthless.

OBSCURED GLASS IN GREENHOUSES.

BY GORDON LEVER, IRVINGTON-ON-HUDSON, N. Y.

It may be worth while to say a word or two about obscured or semi-opaque glass in greenhouses, though there is hardly any wish to stir up such a controversy among writers as was raised by the "WILD GOOSE PLUM."—(This in capital letters, Mr. Printer, as it is going to be a good year for wild geese, perhaps! hardy Rhododendrons, and kindred subjects.) It is hard to tell at present what is hardy among this princely class of plants, and the man who has capital, would do a real benefit to horticulture by careful experiments for a couple years up in this latitude with so-called hardy Rhododendrons, and give us some day the result of the trial—situation and everything else considered. But I am wandering from the subject, and scribbling over space may cause the Editor's hair to stand on end, like plants that don't know what to do with head-room in a dark corner except to straggle up to the light. Speaking about obscurity, I dont know of anything that takes the gloss and greenness out of bedding stuff in such an insidious way as ground glass. Roses suffer a little too, and their leaves look as if the gardener's unwelcome pet, the lively red spider, was around and on the rampage, though the prevailing moisture forbids his mischievous inroads. It does very well over Camellias and hard-leaved stuff, where they have plenty of air-space and bench-room, though the rosy tints of some Azalias are affected in an unexplainable way by the hazy light admitted. They grow and flourish certainly, are seldom drawn, but there is an absence of that pure, healthy coloring to be found in pure sun-light and more favorable circumstances. Callas and most white flowering stuff are not visibly discolored by the light through ground glass; on the contrary, their whiteness seems to be improved; but fine foliage plants, Crotons, &c., get somewhat seedy in appearance and the streaks and markings are not so distinct and vigorous as under clear glass. Ferns, Palms, Begonias, &c., grow very well under obscured glass, but there is something unmistakable in their general appearance which is not favorable to the use of this kind of glass overhead. If it could be replaced by transparent glass on dark days and during the Winter months, the greatest objection to its use might be overlooked, but as this is out of the question, I would suggest that only a couple feet each side of the ridge pole be glazed with ground glass, the rest to the edges of the benches clear. This will tone down the violent mid-day heat of the sun in Summer, and admit nearly all the sunlight in Winter and Spring, when it is most needed.

CALLA ÆTHIOPICA.

BY J. M.

This plant is probably as well known as any thing that could be mentioned. Though not belonging to the Lily family proper, it is yet almost universally known as the Calla Lily. It is found in almost every one's house, and is one of the main things grown by florists for Winter blooming; its spotless white spatha, or flower as

commonly called, making it most desirable for much of the cut flower work. In many parts of England the Callas are grown in the basins of fountains, remaining there Winter and Summer, the water not freezing to the roots. Under this "take care of themselves" plan the flowers are unusually fine, and their great beauty and attractiveness when in flower can readily be imagined. It is customary here, so far as observed, to force a rest on the plants, by drying them off after flowering. For those who want fine large flowers, we think this is wrong, as larger ones could be had by keeping up a continuous growth. Florists argue, and correctly, that they do not want large flowers of it, but smaller ones rather, as being suited to a greater variety of work; and so, in their case, the drying off is reasonable. But to those who wish to grow it to perfection, I would advise that they keep it continually growing.

VERBENA RUST.

BY MR. CHAS. HENDERSON, JERSEY CITY HEIGHTS, N. J.

I send you to-day specimens of Fuchsia leaves affected by "Verbena rust." I would have sent you Verbenas also, but I am glad to say that I can't find a single plant so affected. If you will place the leaves under a microscope of any average power,—say 200 or 300 diameters, you will see the "mite" or insect. We have examined scores of different kinds of plants, with the leaves having this rusty appearance, and have rarely failed to find the insect. It requires but little experience to determine at a glance the difference in the ravages of the "*Aphis*," or the "red spider" on plants and the "Verbena rust," for neither of the former are nearly so fatal to healthy growth, and are both more under control; tobacco in almost any form being fatal to the "*Aphis*," while a moist atmosphere charged with sulphur from the pipes will subdue the "spider"; but neither of these, or any other remedy we have yet tried, seems to check the "rust," if it once gets a foothold. The only salvation, as far as we know, is prevention by the means stated in my communication in the January number of the *Monthly*. We observed also in the case of Fuchsias, Penstemons, Phlox, and plants of a more hardy nature, that they are more subject to rust when grown in a high temperature than in a low one. For example, in endeavoring to propagate rapidly the new Fuchsia "Racemosa," it was placed in a temperature of 65° at night, when it began to assume the rusted appearance, and an examination by the microscope showed it to be covered as was to be expected, by the "mite," similar to that to be found on Verbenas when rusted; but on removal to a cooler house, where the temperature was 45° at night, in two weeks they became comparatively free from the disease. Thus it would seem (though in no way resembling the red spider, either in appearance or in its ravages,) its ravages like that of the red spider is lessened when at a low temperature. This assuming that the mite or insect is the primary cause of the rust. But this matter seems not yet finally settled.

[Examining Mr. Henderson's specimens, we fail to see any connection between the "mite" and the disease. The parenchymatous masses are in many cases blackened, apparently by fungoid action, without any puncture of the epiderm, which would have been the case if an insect had operated just there. The appearance in this Fuchsia case is scarcely the same as in the Verbena, and we should not be surprised if it was caused by another fungus. Only those skilled in these matters can decide on this matter, however. Prof. Farlow, of Boston, is the best investigator we have in this country and it would be well to send fresh specimens to him.—Ed. G. M.]

STREPTOCARPUS RHEXII.

BY BENJ. GREY, DEDHAM, MASS.

A beautiful little Gesneraceous plant from the Cape of Good Hope, and although not of late introduction, well deserves general cultivation. The leaves are radical, a few inches in length, rough, and of a fresh green color. The flowers, which are produced singly on stems four or five inches high, are of a light blue, with stripes of a deeper shade; each flower forms a twisted seed vessel, from whence the name, streptos, twisted, and karpos, fruit. The seed pods are four or five inches in length, of a brownish green color, and with the flowers and leaves the contrast is pretty, and the appearance of the whole decidedly neat. The plant is herbaceous, and therefore requires to be grown, and will flower all the year. It likes heat and moisture, and should be potted in a rich, sandy compost. Propagated from seed, which it produces in abundance.

EDITORIAL NOTES.

American and Italian Tuberoses.—A correspondent of the *Gardener's Chronicle* says he willingly pays double the price for American tuberoses that he can get Italian roots for.



CAMPSIDIUM FILIFOLIUM. *See page* 111.

Trachelospermum jasminoides.—The Rhyncospermum jasminoides of our conservatories, has signified its appreciation of its new name, as given above, by producing fruit in an English greenhouse. We suppose no one has seen it seed in America. It is a very good late winter-blooming greenhouse climber. We have few good winter white-flowered climbers; Stephanotis floribunda, seldom flowering before May.

Chlorophytum Sternbergianum.—It may be as well to let our readers know that this very beautiful basket plant is known in English collections as Cordyline vivipara.

NEW OR RARE PLANTS.

New Rose—*Thomas Meehan.*—We take great pleasure in introducing this fine novelty, having tested it for five years, and now feel assured it will prove to be all we claim for it. It is a seedling from the beautiful rose, Prince Camille de Rohan, but of a more compact and dwarf habit of growth than its parent

It is an exceedingly free bloomer, the flowers of fine size, beautifully imbricated, rich deep crimson color, with a charming velvety appearance, and remarkably fragrant.—*Hoopes Bro. & Thomas.*

Zonale Pelargonium—*New Life.*—This new appearance in English gardens is striped "like a carnation," and will begin a new era among geraniums.

Campsidium filicifolium.—*See cut p.* 110.—An elegant climber of rapid growth, for greenhouse culture, the leaves of which much resemble the fronds of a fern, in miniature, giving it an unusually graceful appearance. It may be grown as a pot plant, or trained to the rafters; very desirable.—*Wm. Bull.*

New Double Geraniums.—Mr. Kirchner of Philadelphia sends us a sample of two seedlings. One is a semi-double scarlet which will probably seed well, and be of interest to those who would like to try to raise varieties for themselves. This is "Conrad Kirchner." The other is a very double and brilliant scarlet, which he calls John Baumann. We think we have not seen quite so brilliant a scarlet among the double kinds as this.

QUERIES.

Heating a Small Conservatory.—W., Hartford, Conn., writes:—"I have for some time past contemplated building a small conservatory in which to grow the less common greenhouse plants. Among other things, I wish to try a few cool Orchids; but the only place I have that is available for such a thing is on the east side of my house, where there is room to build a lean-to ten feet long and nearly as many wide. I have hesitated about using this place from fear that it does not receive sun enough to insure a healthy growth of the plants. On the shortest days in Winter the sun would not strike this place earlier than 8:30 A. M., and at this season not earlier than seven o'clock. There would, however, be nothing to shade the conservatory on its south side. Now would this be sun enough to make the growing of the class of plants I have designated in every way successful? Where there is a strong vigorous condition of the plants, the time given to their culture is production of great enjoyment, but where, in spite of all one's efforts, they remain feeble and sickly, the result is the most unsatisfactory of anything one can do. And so I do not care to be at the trouble and expense of a conservatory, if by reason of its location the experiment should be a doubtful one at the outset.

"I would like to inquire the best method of heating a house of this size. It would seem as if even the smallest boiler would be too powerful. Is a flue any better? I could heat it from my furnace, and that without any danger of coal gas, but would not the air then be too dry for a healthy condition of the plants?

"Any assistance on these points you can render me through the *Gardener's Monthly*, will be thankfully received."

[If the house could be heated from the furnace without any danger of gas escaping to the house, it would be quite sufficient for the work. There is no other objection whatever to the heat from cellar heaters. As an additional protection, shutters of glass may be used on the outside—double glass really; this keeps in a deal of heat.

The aspect is quite good enough; it is usual when we need all the light and sun warmth in Winter that we can get, to make the pitch of the roof steeper than when the full light is easy of command.—Ed. G. M.]

Pelargoniums and Geraniums. — A "Subscriber," Mobile, Ala., asks:—"Will you kindly publish in your next issue of the *Gardener's Monthly* the best mode of treating ivy-leaved and apple-scented Geraniums; also what is the distinction between Pelargoniums and Zonale Geraniums?"

[Ivy-leaved Geraniums are always and easily raised from cuttings. Apple-scented Geraniums seed very freely, and are best raised in that way. There is botanically no difference between Geranium and Pelargonium, and yet in a popular way it is a pity there is not, for there is a great

difference in the appearance of the division formerly known as Pelargoniums, and the Geraniums. Our people have got to calling the old Pelargonium "Washington Geraniums," determined to have some distinction between these and the Zonales, which are those which have a sort of horse-shoe band on the leaves—the old tribe of *scarlet* Geraniums—though some have leaves that are not so marked, and there are many shades besides scarlet. What the old Pelargoniums really are, will perhaps be better explained by an illustration which we give with this. It is of a variety sent out by Mr. Bull, and known as "Beauty of Oxton." The "Zonales" have less twisted petals.—Ed. G. M.]



PELARGONIUM "BEAUTY OF OXTON."

FUMIGATING GREENHOUSES.—"Smoky" asks:—"There is a difference of opinion as to the state plants should be in, at the time of fumigation. When that plan is resorted to for the pur-

pose of killing green-fly, some say the plants liable to be scorched should be sprinkled with water before it is done, while others equally as confident, assert "Fumigation must only be attempted when the foliage is perfectly dry." Which plan is right?

[We have never observed any difference, and think there is none.—Ed. G. M.]

FRUIT AND VEGETABLE GARDENING.

COMMUNICATIONS.

SEEDLINGS OF HYBRID GRAPES.

BY REV. J. H. CREIGHTON, LANCASTER, OHIO.

I tried an experiment with Rogers' Hybrid Grape seed that may be interesting to some of the readers of the *Gardener's Monthly*. I planted a long row of the seed No. 9, and they grew vigorously, but before they were four months old, I could see that they all went back to the two parents from which they came. The native and foreign were as plainly distinguishable as if they were a year old. So marked was this backward step that I took no pains to grow them any further. The foreigners were badly mildewed, and the natives looked strong and healthy, and made one almost feel that his teeth were on edge.

[This is a very interesting note. The experiment is worth repeating. Natural varieties, as distinct from hybrids, reproduce themselves very well from seed. Our florists' catalogues are full of such illustrations. If hybrids will thus go back, and divide in one generation, in other cases as in this, it might be the means of distinguishing between natural varieties and hybrids, which it is now often difficult to do.—Ed. G. M.]

THE SENER APPLE.

BY MR. J. STAYMAN, LAVENWORTH, KAN.

Dear Sir:—Yours of September 20th, was received yesterday on my return here, also the apple, although it was entirely rotten, but in fair shape, so that I could take a cut and inside outline of the fruit. I am sorry I did not get it in time to give a more satisfactory outline and description. The scions were entirely dried up, past recovery, which I very much regret, as I wished to graft them at my home place, Leavenworth, Kan. The business at the Centennial continued to increase in number of varieties so that I found it impossible to leave until it was over, and with what I had on hand and some other business, detained me until the 5th of this month before I left the city. I send with this the outline and description. The color and quality I had to judge from memory and what you wrote, which may be both incorrect. If so, please state in what respect and also add about the vigor and any other part omitted. I am very thankful for your kindness in sending the specimen and your interesting letter, and am very sorry that I have been unable to answer sooner.

I took, while at the Centennial, seven hundred and eighty (780) cuts and descriptions of fruit I had not taken before, making my entire collection over 1,700. In every respect complete, and taken by myself, embracing many new and valuable varieties.

I would be much obliged if it is not too much trouble to send me a few more scions fit to graft and direct them to Leavenworth, Kan. Two or three grafts will be sufficient to test the variety, as I expect to be there in about ten days and remain there, from where I should like to hear from you when convenient.

I think the Sener apple a valuable variety and worth being more generally cultivated.

Fruit large; form oblate, slightly conic; color light yellow; dots small, scattered, distinct, grey; stem medium, rather thick; cavity wide, deep, green or russeted; calyx very large, open; segments large, reflexed; basin rather wide, deep, abrupt, slightly furrowed; core large, wide, closed; carpels medium, hollow; seeds rather large, ovate, angular, light chestnut brown; flesh white, tender, juicy, sprightly, pleasant sub-acid; quality good, excellent for kitchen; tree, rather drooping, a regular and generous bearer. Brought from Germantown

some fifty years ago. Grown by Mr. Sener, Lancaster, Pa.; specimen received from Mr. S. S. Rathvon, Lancaster, Pa.

[This apple having originated about Germantown, Mr. Stayman's paper has been very kindly placed at our disposal by Prof. Rathvon, instead of using it in his own *Lancaster Farmer*—a courtesy we highly appreciate. We may take occasion to say that the *Lancaster Farmer*, though *unfortunately* with the local name of "Lancaster" appended to it, is not merely a *local* paper, but is at least equal in general value to any agricultural paper that comes to our table.—Ed. G. M.]

THE SICILIAN NUT.

BY MR. T. G. YEOMANS, WALWORTH, N. Y.

Several years since, we imported plants of the Barcelona or Sicily Filbert, which have fruited for several years, producing nuts of large size and good quality. (We have no plants of it to sell.) Our experience with the Early Wilson Blackberry is, that in *severe* Winters it kills to the snow, and the crop is a failure for that season; while the Kittatinny, in same field, and under same circumstances, produces abundant crops.

EXQUISITE PEACH.

BY P. J. BERCKMANS, AUGUSTA, GA.

This variety which has lately been highly mentioned in England, was produced by Mr. A. De Caradeue, of Montmorenci, S. C., to whom we are also indebted for that very valuable plum which bears his name. About 1858 or 1859, I sent trees of many of our best Southern peaches to Mr. Rivers, and among the number was the Exquisite, which I am pleased to see so much appreciated in England. This peach was doubtless a seedling of Early Crawford, which it surpasses in quality. On page 612 of "Downing's Fruits and Fruit Trees of America," it is fully described. In Georgia its period of maturity is middle of July, a season when we have the greatest profusion of our best varieties of mid-season, and as the Exquisite Peach did not possess extraordinary merits above those of scores of other varieties maturing with it, it has never been grown to any extent.

While upon the subject of peaches, I will mention that the mysterious disease which troubled the trees of the correspondent of *Our Home Journal*, was quite general throughout the South, and was purely owing to climatic influences. The Winter of 1875–6 was unusually mild, there being scarcely sufficient frost to keep the sap dormant. Peach trees were making continual efforts to expand their blossoms from December 1st, and their economy was upset. The severe frost of end of March caught our trees in full vegetation, and injured many to such an extent as to cause the effect described. We had the most extraordinary occurrence here of a number of trees of Hale's Early, covered with peaches the size of a walnut, *but without a single leaf*, this as late as 10th of May, and most singular, perfectly matured specimens of 9½ inches were gathered from these trees on June 10th.

At this date, February 12th, my trees of the *Peen To*, or flat peach of China, are in full bloom, and with half-grown leaves. Some of the semi-double crimson sub-varieties are very beautiful. Of this strain there are some fourteen sub-varieties, some of very dwarf habit of growth quite similar to the Italian dwarf, but with double crimson flowers; others attain a growth similar to our ordinary kinds, some with double, others with large single flowers. The habit of blooming in January has so far prevented the maturing of any of their fruit; it usually drops when half grown. As described by Downing, the fruit is perfectly flat. Our friends in Australia, when sending the pits some years ago, stated that this strain contained both free-stone and cling-stone varieties, and in the colony of Queensland is almost an evergreen. In this section it is unsuited for open ground culture, but well worthy a trial in orchard houses.

EXQUISITE PEACH.

BY CHARLES DOWNING, NEWBURGH, N. Y.

I have not seen the fruit, nor any notice of its having fruited in this country; but Dr. Robert Hogg, of England, in the new edition of his "Fruit Manual," 1875, gives a full description of it, and concludes by saying, "This is a noble peach, and one of delicious flavor; it was raised in Georgia, U. S. A., and introduced to this country by Mr. Rivers. It ripens in the middle of September." This variety was probably sent to Mr. Rivers by P. J. Berckmans, of Georgia, and if so, he can give an account of the origin.

EDITORIAL NOTES.

McAfee's Aeration Apparatus.—Processes for keeping fruits and vegetables on a very expensive scale, are not uncommon. Something to be within reach of every household has been a desideratum. This, Professor McAfee believes he has accomplished. The few dollars he asks for his apparatus, is a low enough price, if the article is effectual.

Grasshopper Machine.—The suggestion we made some years ago that grasshoppers might be caught by machinery, was ridiculed at the time, but the following from the Greeley *Tribune* describes exactly the thing we suggested:

"Mr. J. S. Flory has invented a grasshopper catcher, which, it may be presumed, is an improvement over all the others yet made. Two devices are provided, one with rollers to crush, and one to gather the insects into a box or vat, the enemy being brought in by revolving arms or fans. The machine can be worked by hand or horse-power, and it may be large or small, so as to work in a field or garden. When it gets to work we can tell better as to its merit."

A Hand Plough.—S. L. Allen & Co., whom we have noted occasionally as the inventors of useful agricultural and horticultural implements, send an account of Bateman's Hand Garden Plough. It seems about as good as such a machine can be made when one has to walk backwards. When hand ploughs can be made to be pushed, they will come into more general use.

NEW OR RARE FRUITS.

The Late Peach or Walling Plum.—Mr. Walling, of Oswego, Oregon, writes:—"If you look carefully at the wording of Mr. A. J. Dufur's letter in our circular regarding the Peach Plum exhibit at the Centennial, which was published in the January number of the *Gardener's Monthly*, on page 17, you will observe *late* attached to the name, which will make quite a difference as it was not the Peach Plum at all, but a *seedling* of my own raising from the seed of the Peach Plum; and as it resembles the former plum and ripens ten days later, I called it the *Late Peach Plum*. Please correct the oversight in your next issue.

[As we now understand, there is no objection to the name "Walling," which will be better than "Late Peach."—Ed. G. M.]

Fox's Seedling Pears.—At the Spring meeting of the Western New York Horticultural Society, these seedlings heretofore noticed in our columns were highly praised by many of the members. The Barry and the Wilder were particularly spoken well of.

Rogers' Peach.—Origin, Newbury, Mass. Evidently a seedling of early Crawford, which it very much resembles. As it appears on the original tree (which is the only one to my knowledge that has fruited) it is a little earlier and sweeter than its parent. It was exhibited at our county fair in 1874, and there pronounced by connoisseurs "A, No. 1." Ripe September 15th. *T. C. Thurlow.*

Downer Peach.—Origin, Newburyport. Probably a seedling of the "Old Red Rareripe." The tree has for the last three seasons borne heavy crops of large red peaches, of good quality. September 15th. I do not recommend this or the Rogers—only as they appear upon the original trees. Peaches as well as other fruits, are very apt to be *local* in their character, and should never be planted extensively until tried in several localities.—*T. C. Thurlow.*

QUERIES.

Oil for Fruit Trees.—G. A. F., Mass., writes:—"Will you kindly inform me through the columns of your Magazine — which I have taken for many years and find it almost indispensable,—if linseed oil is good as a wash for fruit trees, to destroy insects, lichens, &c? Is it preferable to lye-water? There seems to be a difference of opinion about linseed oil; some think its use injurious."

[The writer of this washed some hundreds of trees with linseed oil a year ago. It destroyed *all* insects, and the trees were all the season and still are, models of health. It is far preferable to *anything* that we know of.—Ed. G. M.]

The New Rochelle Raspberry.—This is the name given to the seedling, the extraordinary growth and productiveness of which we noted in our volume for 1875. It is said to be a seedling of the Catawissa.

French Pippin Apple.—Mr. Bassett, Hammonton, N. J., says:—"I notice an item about the French Pippin Apple. We had a French Pippin in Massachusetts, ripening nearly with the Porter and similar in shape, but tapering less toward the blossom. It was an enormous bearer and a very good apple. I have a tree of it here just commencing to bear, and it promises well.

Thrips in a Cold Vinery.—T. S. G., West Cornwall, writes:—"For the past two years my vines have suffered much from the ravages of a little lively insect which I suppose to be *Thrips*. They have not shown themselves much until the latter part of the season, when the presence of the fruit forbids the use of any poisonous or offensive application. How shall I destroy them? Will a safe fumigation with tobacco or sulphur do it?

[Tobacco smoke is generally effectual. If one dose is not sufficient repeat it. Sulphur in "fumigation," is fatal to plants and insects alike.—Ed. G. M.]

Natural History and Science.

COMMUNICATIONS.

THE EFFECT OF FROST ON THE FRUIT OF THE PERSIMMON.

BY W. C. FLAGG, MORO, ILL.

In your ever welcome magazine for March I find a quotation from a correspondent of the *London Journal of Horticulture*, in reference to the popular belief that the Persimmon is ripened by frost, which you quote, to say that you thought "intelligent persons everywhere now knew that it was not frost that gave sweetness to the Persimmon, though it often helps the cause that does."

In that event I have not so high an opinion of the knowledge of intelligent persons on the Persimmon question, as yourself. Looking over our botanists, they seem to all repeat the error.

Darlington, in his "Weeds and Plants," says of it: "Soft and pulpy, after frost; sweet and luscious after being subjected to the action of frost." Wood, in his "Class Book of Botany," says: "They are rendered sweet and palatable by the frost." Gray, in his "Field, Garden and Forest Botany," says: "Very acerb, but yellow, sweet and eatable after frost." Fuller, in his "Forest Trees," comes nearer the facts when he says: "In its more northern limits it does not ripen until frost (?); farther south it matures before, consequently, it does not always require cold weather to make it eatable, as is sometimes asserted." These are all intelligent men, but most of them believe frost a necessary agent in ripening, and Mr. Fuller makes only a partial denial. Bryant, in his "Forest Trees," says: "The fruit is best if ripened before severe frosts occur. Freezing removes the astringency, but is not, as some suppose, necessary for complete ripening. If the fruit has not reached a certain stage of maturity before freezing, it is rendered worthless."

This fruit appears to be a "huckleberry above the Persimmon" of our standard botanists at least, and Mr. Bryant alone to hold the "longest pole that knocks down the Persimmons." I think there is no present danger of excess of information.

I wish to raise the farther question—does frost have *any* ameliorating effect, even on nearly ripened fruit? I am inclined to think not, but have made no experiments since I was a youngster, seeking practical results in eatable Persimmons. Judging from my remembrance of them, frost simply hastened the dessication of the fruit, but did not have any other effect. Perhaps the ripening process went on to some extent, but this I should attribute to the heat of the day, rather than the cold of the night.

Can yourself, or any of your correspondents, give any new, or old, facts as to the outdoor or under-glass culture of the Japanese Persimmons? Can you inform me, also, what is the edible value of the Diospyrus Texana, or Black Persimmon of the Southwest?

[There seems to be no difference between our views and those of the botanists quoted, except in degree. If they were as good chemists as

botanists, they might have seen further. To make our meaning plain, we may say, "a knife prunes the tree," but it is no more true than that frost ripens Persimmons. There is a hand, if not always a mind, behind the knife, and other things may be made to do the work as well as the knife. And so, frost is the instrument in some cases. The real power is chemical change, and this can be brought about by other *instruments*, as well as by frost.

We know so little from our own experience of the Japan Persimmon, or the Texan Persimmon, that we should be glad to hear from correspondents who may have had more. It has fruited, we think, in California.—Ed. G. M.]

ON SELF-FERTILIZATION AND CROSS-FERTILIZATION OF FLOWERS.*

BY THOMAS MEEHAN, GERMANTOWN, PHILA.

The following paper was read at the Buffalo meeting of the *American Association for the Advancement of Science*, in August 1876. Other papers by the author on the same subject, have appeared in the *Proceedings* of the Association. This will not appear with the others. Being on a popular subject, it was sought for by some of the papers, and appeared in one; but after such appearance, the Publication Committee is not expected by the association to issue it in their volume. Believing, however, that scarcely any of the members of the association for whom the Proceedings are issued, will have seen it where printed, and that it may possibly interest some of them, particularly at this time, the author gives it in this form:—

"At our last meeting I enquired whether insects are any *material* aid to plants in fertilization. After another year of observation I desire to answer my own question in the negative. Insects, sometimes fertilize flowers, and cross-fertilize them; but I believe these cases are less frequent than they are supposed to be; and that when they do occur, they have no bearing on the general welfare of the race. In other words, such fertilization is of no material aid to plants in the progress of the species. I may repeat the argument of those who differ from me: All plants with brilliant colors, with fragrance, or with honeyed secretions, have these attractions for the purpose of enticing insects, which unconsciously bring pollen at the same time, and thus cross-fertilize the flower. The proof of this is thought to be chiefly in the fact that many plants do not perfect their stamens and pistils at the same time; are placed in relative positions which seem difficult or even impossible that they should have any influence on each other; or in some other way present apparent obstacles to sexual union. From this it is assumed, and not from any actual experiment that I am aware of, that plants abhor close breeding. That plants abhor close breeding, is an idea borrowed from a supposed experience in the higher animals. But the comparison is not fair. In the higher animals the idea of sex is essential to the perpetuity of existence; but it is not so in plants. They reproduce themselves by bulbs, tubers, suckers, offsets, buds, and in the lowest organisms by simple cell division. Propagation, as an idea, is entirely independent of sex in plants. True, many of our forest trees have none of these accessories; even the skilful horticulturist can scarcely graft some of them; and then there are annuals which depend wholly on seeds—a product of the sexes—for perpetual existence. But there is not one that I know of that a horticulturist would say, could not be reproduced indefinitely without the aid of seeds. The Red Dutch Currant is an individual plant which has been reproduced by cuttings from long anterior to modern history; and I believe the Canada Thistle, Couch Grass, Horse Radish, and numerous other plants could be continued for countless ages by their running roots alone. Now this is a closer kind of breeding than anything that could come through the operation of separate sexes, and with which no analogy can be drawn from any experience in the higher forms of animal life. We can see that seeds in plants favor the distribution of species, and enable them to maintain existence for a longer period than mere plants could. Sex in plants may be a factor in the evolution of form; but those who have kept pace with botanical knowledge, and are familiar with what is known as bud variation, will not lay much stress on the absolute necessity of sex to this end, in vegetable nature. I believe I am safe in saying that there is nothing whatever known to prove that there is any physiological benefit to plant races by the establishment of the sexes. Some have thought that the varieties of apples wear out in time; but even this is being argued on both sides by the most distinguished horticulturists; and I

* Prof. C. V. Riley, after the reading, expressed doubts as to whether Yucca would fertilize by its own pollen in this way and without insect aid, and asked leave to cut open the capsules, confident, he said, of finding larvæ. He cut them open in the presence of the audience, but found none.

may say that I have seen at the recent Centennial Exhibition, as fine Golden Pippin apples, the kind used to illustrate the theory, as ever Mr. T. A. Knight thought were only seen in his younger days.

We must then lay aside all considerations of the benefits of cross-breeding from analogy or inference, even though we should find that all plants discarded their own pollen. There may be some other reason, quite independent of any sexual consideration; and it is because I believe there are other reasons in dicœcious, moncœcious, and other cases, that I take the stand I do to-day.

We may note, in the first place, that insects visit some anemophilous plants as freely as they do others. They, for instance, abound on the male flowers of the willow, especially Salix caprea, which have abundant honeyed secretions. But they avoid the female plants. If honeyed secretions are for the purpose of enticing insects for cross-fertilizing purposes, how is the object attained here? Later in the season we see the same thing in Rhus. R. glabra and R. copallina as I have shown in a former paper before this association, are in effect dicœcious. The male flowers have a honeyed secretion peculiarly attractive to innumerable insects. A panicle of these flowers is a wonderful entomological cabinet. I know of nothing like their visits here in the whole floral world. I have six plants of Rhus copallina within twelve paces of each other. Five are males and one is a female. I have never seen one insect on the female plant, neither does it seed, neither wind nor insect serves it. Here are two species with color and honeyed secretions on which insects abound inordinately; and yet the insects aid in no degree whatever, in fertilization. I ask you whether I may not say most decisively that whatever may be the purposes of color, fragrance or honeyed secretions, they are *not* for the purpose of attracting insects in the interests of cross-fertilization. Then there is Yucca, about which so much has been made. In my grounds, Yucca filamentosa abounds. It opens its flowers about the 25th of June. In 1875 a plant of Yucca angustifolia blossomed on the 5th of June. Though closely watched I found no Pronubas about them. They produced no seed. The Y. filamentosa had numbers, and seed abounded. About the 5th of June this year, the Y. angustifolia again opened its flowers. On the 12th, I noticed the Pronuba to abound, and I hoped for seed. There were from one to five in each flower. On the 19th, I noticed that the flowers had almost all fallen fruitless. I then placed some pollen on four of the flowers, each pollen from its own flower, and these four capsules which I exhibit, are the results. The only seeds the plant produced. Even when fertilized at all by insects. I am sure the fertilization is from the pollen of the same flower. My experiment shows its own pollen is acceptable to it. It is true it is difficult to understand why the plant seems unable to fertilize its own self without extraneous aid; but it is clear that it is not from any abhorrence of own pollen, or an especial desire for insect aid; especially the aid of an insect whose chief mission seems to be to prey on the fertilized seed!

(To be continued.)

EDITORIAL NOTES.

TIME IN EVIDENCE.—Prof. Goodale has been giving a lecture in Boston on cross-fertilization in flowers. He is reported in the *Massachusetts Ploughman* as saying, in effect (for we have not the paper just now before us), that the observations of a single season ought not to weigh against the many years of study given the subject by Mr. Darwin.

It is true that our observation, that clover *will* seed without insect agency, extends only over two seasons; but there is no evidence that Mr. Darwin tried the protection of clover from insects but once. This is the fair contrast—the clover experiment against the clover experiment, and not the clover experiment, or any other special point, against the "whole subject" in that general sweep. It is an ingenious way of putting down an opponent, but not satisfactory, we think. Even though Mr. Darwin had tried the clover under "protection" for a number of years, and it gave no seed, while another in but one season under protection found every flower seed, why is not that one season enough to establish the fact that clover will seed without the Humble Bee? If Prof. Goodale is correctly reported, he must surely see the weakness of such an argument.

EXOCHORDA.—Trusting to the memory of the plate in Hooker's *Botanical Magazine*, we gave Hooker the authorship of the name. But it was *Lindley*, and not Hooker, who separated it from Spiræa, and established the name.

ASCLEPIAS CORNUTI.—Referring to our common silk weed, we wrote as if it was different

from A. Syriaca. We forgot, in the haste of paragraph writing, that Asclepias is confined to the New World, and that the name was changed because this plant is not a native of Syria, though growing wild, abundantly, there. We are indebted to a friend for suggesting this error and that of Exochorda to us, such suggestions being always valued by us.

After all, the error arose from the change of name, hardly with cause. We have Marilandicas Carolinianas, Canadensis, and so on, attached to plants, with little more reason than in this case. It is probable that Gymnocladus Canadensis is a wanderer from more southern latitudes into Canada, perhaps by Indians or by some agency as much artificial as the introduction of our silk weed near "Jerusalem." No one expects names to mean just what the words would mean in general application. Cæsar Snowball, does not apply to the Legislature for a change of name because he is not white; nor John Black, because he is white. The result of the change of name in the Asclepias is, that many Europeans, as seen by our quotation, seem to keep to A. Syriaca; while others, and all Americans, probably use A. cornuti. But we, who are horticulturists, must follow the botanists in these things.

Number of Species of Fuchsia.—Mr. Hemsly, in the *Garden*, gives a description of all the known species of Fuchsia; the list foots up fifty-three.

Fungus on Californian Pines.—Dr. W. H. Harkness says that a fungus, Peridermium Pini, grows on the stems of Pinus insignis and P. ponderosa. It germinates beneath the cuticle, and results in "swellings" or knots on the branches.

Algæ in drinking Water.—Vast numbers of effects of great importance to mankind are brought about by minute animal and vegetable organisms, of which until a few years ago, we were comparatively ignorant. Prof. W. G. Farlow, of the Bussey Institute, at Boston, is making these a special study, and no more useful work could be pursued. Last year the drinking water of the city of Boston had a peculiar "cucumbery" taste. It was supposed that some algæan water plant occasioned this, but Prof. Farlow could find no evidence of it. The examination of the subject, however (reported in the *Bulletin* of the Bussey Institute for 1877), led to other discoveries. There are minute water plants which produce nauseous odors when decaying. As a general thing they are harmless, but when decaying in large quantities —and there are at times epidemics among plants as among animals—they may injure water. Birds or fish are good to keep this matter down.

QUERIES.

Blue Glass.—H. L., Oak Park, Ill., asks:—"Did you ever have the *blue glass* disease in Philadelphia? It has become epidemic in Chicago. Should like to see an article in the *Gardener's Monthly* on the subject, from some one that has tried its effects on vegetation. Is it *all* humbug?"

[Experiments with colored glass on vegetation were very carefully made by Prof. Hunt, of the Royal Institution, over thirty years ago. The writer of this went over Dr. Hunt's experiments. Common mustard seed was sown in different pots, leaving an inch or more of space for the plants to grow. Flat panes on the pots, and in some cases colored bell glasses were used. Some colors certainly seemed to make the seeds sprout sooner and the plants to grow stronger for a time, but they became weaker in the end, and generally died first; some of them died when very young. It is so easy for any one to try these things for himself, that we regard a mere "opinion" by an Editor of a magazine as of little account. All we can say is, that whatever may be the cause, General Pleasanton's grapery did at one time and we suppose does still, for we have heard nothing to the contrary, do him infinite credit.—Editor G. M.]

Climate of Coalville, Utah.—A correspondent from this place writes:—"I am living in an altitude of about 5600 feet above the altitude of New York City, and here the mercury runs down to 25° and 30° below zero, as it did last month. Nothing in the shape of fruit has been grown here. I have planted apricots, peaches, apples, blackberries, currants and raspberries, but all have been killed in previous Winters."

Poisoning by Rhus.—A. R., N. Y. City, writes:—"For public benefit add, when your space admits of it, a remedy against poisoning by 'Rhus toxicodendron:'—Fluid extract of Grindelia robusta, 30 to 40 drops in half a tumbler

of water and apply it to the affected parts, keeping them well wet with it until cured. The above has helped wonderfully, where other remedies worked but slowly."

LITERATURE, TRAVELS & PERSONAL NOTES.

COMMUNICATIONS.

GARDENING GOSSIP OF THE OLDEN TIME.

BY A. W. WILSON.

Your useful and interesting *Monthly* is, I believe, well known in Britain, but I, being "off the track,"—having shunted on a siding many years since—it had not come much under my notice previous to this, my second visit to America. Being of opinion that it ought to be supported, I would like to contribute something to its pages, but my acquaintance with professional gardening is so antiquated, so far behind the age, that it would be presumptuous in me to pretend to enlighten your practical readers, and almost to hope to interest the amateurs of the present day. I have, however, a lingering love for the fine old art, and cannot help recalling and cherishing the studies, the labors, and even the drudgery of forty odd years ago with delight.

The Horticultural Society of London was then young, vigorous and in full bloom, notwithstanding that its first Secretary, Mr. Joseph Sabine, with the Council as accessories, allowing their zeal to outrun their discretion, had involved it in debt to the tune of $85,000, it was doing good service, examining and practically testing every appliance or feasible idea connected with Gardening; collecting the hardy fruits and culinary and esculent vegetables of the world, cultivating them in the Gardens at Chiswick, under the skilful superintendence of Mr. Robert Thompson, and with the aid of his keen critical judgment, comparing, proving and rectifying the nomenclature; for many, especially of the older and more popular sorts of fruits, were received under a great variety of names. The results were published periodically in the Horticultural Transactions, and the best sorts of fruits were beautifully figured and recommended in the *Pomological Magazine*. The adventurous David Douglas, who ended his days so tragically in what was then known as Owyhee, had sent home chiefly from your Western Territories the beautiful Clarkias, Œnotheras, Lupines, Nemophilas, Clintonias, Gilias, Pentstemons, Mimulus, Bartonia, Eschscholtzia, Ribes, &c., which are now the pride and glory of every cottage garden in Britain, also numerous species of the stately Pines and other forest trees which clothe your Rocky Mountains and Pacific Slopes. Plants, seeds, grafts, cuttings, or other forms of all of these were as far as practicable distributed throughout the country and abroad to all eligible applicants. George Gordon, than whom no man was more at home amongst trees and shrubs, and who, about twenty years since, wrote an exhaustive book on Coniferæ, was Superintendent of the Arboretum. Robert Fortune was in training at the Edinburgh Botanic Garden and University, to take charge of the Hot-house Department, and from thence to proceed on his "wanderings in the Northern Provinces of China," and in other Eastern countries. He visited Assam at the instance of the United States Government with reference to the proposed cultivation of the Assam tea-plant in the Southern States of the Union; and on his first visit to Japan, he penetrated the country from on board of an American ship, access being then denied to the British. It is scarcely necessary to remind those acquainted with hardy ornamental plants of recent introduction, for how many of them we are indebted to my old friend, Robert Fortune. Joseph Paxton had been selected from the rank and file of the garden hands, by the Duke of Devonshire, and placed over his princely gardens at Chatsworth, where the successful erection of a very large conservatory of iron and glass led to his undertaking the construction, on the same principle, of the London Exhibition Building of 1851, and the re-erection of it as the Crystal Palace, with its beautiful grounds laid out by him, at Sydenham. The President of the Horticultural Society was Thos. Andrew Knight, of Downton Castle, Hereford, a very successful originator of new fruits; he also proved the carnivorous character of the Venus' fly-trap, long before the

experiments of Darwin. George Bentham, nephew of the well-known philosopher, Jeremy Bentham, and an eminent botanist, was the secretary *de jure*, but Dr. Lindley, a still more eminent botanist, as assistant secretary, was the main-spring and prime mover in everything practical relating to the Society and the gardens, and he was ably aided, especially in the work of production and distribution by the gardener-in-chief, Mr. Donald Munro. John Lindley, professor of botany in University College and other institutions in London, was the son of a nurseryman near Norwich, and father—though he did not live to see his son's elevation to the "Bench"—of the present Sir Nathaniel Lindley, one of the judges of the English Court of Queen's Bench, at $30,000 a year. Before quitting this subject, it may not be out of place to notice at least four highly respectable men who graduated in the H. S. gardens, and have made their mark professionally in the United States, viz.: John Cadness, at Flushing, L. I.; John Lumsden and John Ford at Detroit, Mich.; and Robert Carmichael at Frankfort, Ky., where he was much honored, and died about eighteen years ago. The two first-named attended Dr. Lindley's lectures, so it is not to be wondered at that they are well "posted" in Botany. "The Royal Botanic Gardens" at Kew were at that time, and had for many years previously been, "under a cloud," or if the sun shone on the collected treasures and the privileged few who had access to them, he shed no ray of scientific light or intellectual enjoyment on the many curious souls outside. Kew House and Park were an appanage of royalty, having been taken on a long lease by the Prince of Wales, father of George III. His widow took great interest in forming the Botanic Garden, consisting at first of 11 acres and laying out the pleasure grounds extending to about 260 acres more, and her daughter-in-law, Queen Charlotte, who was a tolerably proficient botanist, as times went, did much to increase the collection of exotics; hence Sir Joseph Banks named the genus Strelitzia, in her honor. In 1759 Wm. Aiton, a pupil of Philip Miller, of dictionary celebrity, was placed in charge, and in 1789 produced the "Hortus Kewensis," containing an account of 5,600 species of exotics found in British gardens, with many admirable plates. Mr. Aiton was succeeded by his son, W. T. Aiton, and conjointly and in succession they had charge of the gardens and grounds for eighty-two years, but after the death of Queen Charlotte and Sir Joseph Banks, and during the reign of George IV. and William IV., they were much neglected, and suffered from want of royal and scientific encouragement. At length, the popular demand that they should be thrown open and made useful to the nation, or abolished, reached and was listened to by Parliament. Queen Victoria ever disposed to gratify and benefit her subjects, graciously relinquished her *quasi* claim to all except a very small and private portion of the domain. The Botanic Garden proper comprising 25 acres, the Pleasure Grounds or Arboretum of 270 acres, and the Old Deer Park of 400 acres, were declared open, under certain slight and necessary restrictions, every day (Sunday included) from 1 P. M. till sunset. Sir William G. Hooker, the distinguished botanist, was called from his "good fruits" and professional chair at Glasgow, and "promoted over the trees." Seldom has the change from unprofitable appropriation and exclusiveness, to light and liberty, usefulness and popular enjoyment been more marked and satisfactory in its results. The number of visitors which in 1841 (the year of reform) was 9,174, rose in 1869 to 630,594! The collection of plants has been immensely increased, numerous houses, some of them very large, have been erected, a Pinetum as well as a general Arboretum formed, and the planted portion greatly extended; special prominence is given to medicinal, economic and curious plants. A former residence has been devoted to a museum well-stored with specimens of woods, textile materials and everything connected with or belonging to the vegetable world, and in another building are to be found the herbaria of Bentham, Cunningham, Carey, (American,) Burchell, Lindley's Orchids, and the largest collection in the world, that of the late Sir W. G. Hooker with those of other botanists which have been acquired from time to time. The whole is under the able directorship of the eminently liberal and scientific Dr. J. D. Hooker, and no more pleasurable out or intellectual treat for the lover of nature or votary of science can well be imagined than a visit to Kew Gardens as they are now on a fine day.

(To be concluded.)

NOTES FROM CALIFORNIA.

BY E. LONSDALE, GERMANTOWN, PHILA.

As much interest is manifested in California by horticulturists in general, a few extracts from

a letter just received from my friend, Chas. J. Hachtel, San Jose, Cal., may not be out of place in the columns of the *Monthly*. He says: "If you had been out here this season, you would have seen something to astonish you. On October 28th, 1876, we had three-fourths of an inch of rain; from that date until about the 20th of January, 1877, not one drop of rain fell. For nearly two months we had steady north winds, with a sharp frost every night. (During a part of the day—from 10 A. M. until 3 P. M.—it was calm and warm.) The last frost we had was very severe, the temperature at 7 o'clock being down to 20°. Many things hitherto hardy here were killed, but I think the dry weather had the most to do with it. Altogether, we have had about three inches of rain this season. We will need much more than this to insure good crops. In the southern counties the sheep and cattle are dying by thousands for want of food.

"In the nurseries, nearly all business was at a stand-still. All the florists in San Francisco dispensed with their help, retaining only one man. In San Jose, in the nurseries, all the Chinamen were discharged, the white men only were kept on.

"It is now February. If the past is an indication of what will be sold in the future—to the end of this season—I am very much afraid nurserymen and florists will not make expenses.

"The cut flower trade, you say, has been dull in the East. It must have been worse in San Francisco; many choice flowers even at Christmas had to be thrown away. The prices of plants have changed since you were here. The very best Geranium that can be grown in a four-inch pot, will not bring more than 25 cents, and often is sold for less. And here in this valley (Santa Clara), the Verbena never gets killed, but grows to be a bush, and not a sign of rust is ever seen. If we sell 50 or 100 plants during a season, that is all, for a whole neighborhood will soon be supplied from them.

"Blue Gums (Eucalyptus globulus), which used to readily sell for 25 cents each, can now be bought for 10 cents. Acacias sell at the same price. Indeed, all kinds of trees, shrubs and plants are down in proportion. The trouble is out here, California is the only market, and, as yet, is but sparsely settled, and the climate generally is too favorable, and when there happens a dry season like the present, nothing can be sold.

"I have succeeded in flowering many of the popular species of Orchids, some of which are now in bloom. Two plants of Oncidium Cavendishii, one has thirty flowers open, the other thirty-six; the first flowers opened three weeks ago, and are yet as fresh as they were the day they first opened. Two varieties of Lælia are just over, L. acuminata and L. autumnalis, both of which are very fine. A variety of Odontoglossum pulchellum majus is in flower now, which would be a grand thing for cut flowers. The color is pure white, with a little yellow crest in the centre; its texture is waxy, and with a fragrance as strong as the Hyacinth, besides, the flowers last for weeks in perfection. There are quite a number of Lycaste Skinneri coming on to flower. I think these would prove valuable for the florist, as they need but a small amount of heat to flower them well.

"Two plants of Thunbergia Harisii flowered with me well last Christmas. They were grown in eight-inch pots, and had over one hundred flowers on each. One plant sold for six dollars. The flowers of the other went to waste, as there was no demand for them. This comes in at a good time for florists, and if plenty of heat is at command, there is no trouble about flowering it."

This Thunbergia being a climber or trailer, is well adapted to train along the rafters of a warm greenhouse. The flowers are porcelain blue in color, with yellow throat; in shape somewhat resembling the Gloxinea.

RECOLLECTIONS OF AUSTRALIA.

BY WM. T. HARDING, UPPER SANDUSKY, OHIO.

(Continued from page 62.)

The living plant links which apparently connect the present with the past, were warmed and nurtured with the same radiant, life-giving sun, whose refulgent beams quickened the germs of embryo vegetation, myriads of ages gone by, and still gloriously shines on our planet to-day.

If the illustrious Captain Cook had proceeded thus far, after naming that remarkably beautiful inlet on the coast, Botany Bay, which so captivated him with its bosky parterres of charming flowers, he probably might have considered *Botany Vale*, or *Floral Chasm*, proper names for the spot, which my feeble pen attempts to describe.

The rugged and stupendous rocks before me were grandly mantled with green ferns—draped

with creepers, covered with climbers, and mottled with flowers. A mountain stream tumbled down the rocky scarp with considerable force and noise:

> "Its bounding crystal frolicked in the ray,
> And gushed from cliff to crag, the pearly spray."

No hanging gardens of Babylon surpassed these. Neither Nebuchadnezzar, nor his Medean queen; Solomon nor Cyrus, ever looked upon a lovelier picture. Notwithstanding the halo, real or imaginary, which has hovered round the Orient for ages, no ancient Assyrian, Jewish, Persian, Grecian, or Roman potentate, when reveling in the full meridian pomp and splendor of Eastern magnificence, ever saw so fair a scene. No one for a moment doubts that the *natural hanging gardens* of Australia, antedate those of Babylonian fame. Although apparently "as old as the hills"—yet, no historian's pen has recorded their wonders, or cast an antediluvian glamor around them. We may reasonably suppose, that the eyes of pre-historic man have often scanned the scene many thousands of years before it met the gaze of the Caucasian.

Those wretched specimens of humanity, the nomadic savages, who wander through their native forests in a beastial state of nudity, know nothing of the past. As with them, so of their country—there is no written history. Whatever consequences Adam's fall may have brought upon the white, it is evident the aboriginal Australian did not, as a consequence, fall into the fig leaf fashion. A couple passed me, (a sight common enough,) who in one sense, somewhat resembled the condition of Adam and Eve, as described in the second chapter of Genesis, "they were both naked, the man and his wife, and were not ashamed." If some of the doubting Thomas', who laugh at the idea of having a monkey for an ancestor, were to see one of the abject creatures, who seem only to lack a caudal appendage to make him positively a handsome monkey, instead of being as he is, absolutely the worst looking man, I feel convinced they would easily be converted to Darwinism.

Beast-like as they are, they nevertheless seem to love or like one another, as the practice of anthrophophagy proves. Whether their *cuisine* is as *recherche* as the Fejee Islanders celebrated *roasted missionary*, or not, I am unable to say. I am not so positive in my opinion about flesh as was Paul, who, with his usual acumen, seems to have had the faculty of a nice discrimination. See 1 Cor. xv. 30. Eupepsia, as an art, or gastronomy, as a science, formed no part of my education. No, gentle reader, I am only a very common man, and am easily satisfied with plain beef and mutton. I never gave much heed to the *flesh-pots* of Egypt, or felt a hankering after *titbits*, or craving for *toothsome* dishes, or *taste* for *game* of any kind—*mankind* especially. So I will leave the fact for more *experienced epicures* to decide.

TO THE FAR WEST.

BY MRS. F. E. B.

So many have described the great "Overland Route," that it may be superfluous for me to add anything to their delineations, but I must give you some of my impressions. Through Nebraska and the first part of Wyoming there is little to interest the eye. The land, no doubt, is fertile, but so flat, mile after mile, hour after hour, a mere flat, treeless, waterless, desolate waste. The Platte is the most uninteresting river I ever saw. It is a wonder it runs at all in that apparently dead level, and though the few trees on its banks were all we saw in the State of Nebraska, one could hardly wish for more of them, for more knarled, twisted, desolate looking specimens I never saw. We hardly get a glimpse of mountains until we cross the Rockies at Sherman. After that we never lose sight of them. Hour after hour we are in their solemn shadow. Sometimes they retire for a little space, but only to close around us again in more awful grandeur. No graceful crown of trees is theirs', no verdant robe, no gay garniture of flowers, only the gray sage bush, and a few stunted pines, and rocks—everywhere rocks. Yet the eye never tires, and the thought crossed my mind that even infinite ingenuity must have been tasked in devising the ever varying forms of those rocks. Forts and castles, and domes and towers, walls, and monuments, graceful peaks and bold overhanging masses, and strange fanciful animal and human shapes, all are there. I felt that it would be good for me to dwell in sight of these mountains, that nothing low and groveling could live in their shadow, that they, so steadfast and unmoved, could ever beckon upward toward a higher and better life.

On the eighth night out, we crossed the Sierra Nevadas, and the morning sun showed us a new land. The mountains were about us still, but lofty trees and graceful shrubs adorned their sides, and green valleys found place among them,

and we saw fertile fields, and fruitful vineyards and orchards, and gay gardens, and the tokens of new industries. We landed at Marysville, December 7th. Geraniums and Oleanders were common inhabitants of the gardens, roses were in bloom, oranges on the trees, and huge Cacti looked over the fences. In the vegetable gardens young peas and lettuce and radishes were growing side by side with mature vegetables, cabbages and beets, &c. One would be puzzled to decide the season by the eye alone. The distant hills bore the tints of Autumn, and the frosty nights seemed like September or October; the early vegetables and springing grass looked like Spring, while the hot mid-day and the gay gardens are like mid-summer. Everything seems to be done differently here. Instead of the mixed farming of the East, each farm or "ranch" seems to be devoted to some specialty. I saw a lady at Marysville whose husband owns a wheat ranch of 1,500 acres. We saw stock farms of equal and of greater extent, with thousands of cattle, one "almond ranch," near Marysville, of about 20,000 trees. The "dairy ranches" are chiefly among the mountains, for the advantages of cheap land, and cooler temperature. "Virginia Ranch," where we stayed four weeks, is a fruit ranch, an elevated plain among the "foot hills," as they call the lower tiers of mountains. These grow nearly all of the fruits that flourish in this favored land.

HORTICULTURAL PROTECTION.

BY W. H. W., READING, MASS.

In the February number of the *Gardener's Monthly* the Editor says:—"We do not want any articles on the *justice* of (horticultural) protection. All that is granted. Of course, if anybody denied that the principle of protection should be applied to horticultural improvement, the burden of proof would be on him. But it is not denied."

I am as much surprised as gratified at this statement. I had supposed that many did deny "that the principle of protection should be applied to horticultural improvements." Mr. P. Barry says in the *Rural New Yorker* for Jan. 9, 1869:—"As a horticulturist I protest against this movement, (to secure legislation in favor of horticultural protection,) and hope that Congress will pay no attention to it. The originators of valuable varieties of fruits, grains or vegetables, have it in their power, now, to secure ample compensation."

That sounds to me as if Mr. Barry, at least, was then, if he is not now, opposed to horticultural protection, not merely on the ground of its impracticability, but on the ground of right. He seems to me to claim that originators of new fruits have *no right* to any additional legislation in their behalf, for they can already secure without it all the compensation for their improvements to which they are fairly entitled. But if I have misunderstood him and those whom I had supposed to agree with him, I am glad to know it. Certainly the Editor of the *Gardener's Monthly* has had far better opportunities than I, to learn the opinions of horticulturists upon this subject, and the grounds on which those opinions rest. And I gladly accept his testimony as conclusive that "no one denies the *justice* of horticultural protection." "No one denies that the principle of protection should be applied to horticultural improvements" if it can be.

Thus far then we all stand together upon the same ground. We are all agreed that the *principle* of horticultural protection is just and right; that equity requires the application of this principle to new fruits as much as to new inventions.

Then we should all unite in an earnest endeavor to put the principle into law. If it is an equitable one, one that "*should be* applied to horticultural improvements," then every one should favor an honest *attempt* to embody the principle in suitable legislation. True, difficulties may appear and objections may be urged. But is that an adequate reason for opposing what is acknowledged to be just and right, or even for declining to make any effort to attain what we acknowledge ought to be attained? There are difficulties in the way of every reform. Objections may be urged, and commonly are, against every attempt to bring our laws into more complete harmony with the principles of equity. But surely these facts do not justify opposition, or even indifference to equitable and desirable progress; for if so, what progress would ever be made? If the *principle* of horticultural protection is *right*, then let us all stand together on the side of the right. Let us exert our united influence in favor of an honest and earnest *attempt* to make the right effective; to surmount the practical difficulties, and embody the equitable principle in appropriate legislation.

But to this it is replied that while *in theory* the principle is sound, yet the difficulties in the way

of its practical working are so many and so serious as to forbid any attempt at legislation on the subject. There is no reasonable ground for hope that the good sought could be attained. In reply I have several things to suggest.

1st. This is the standard objection of conservatism to all attempts at progress. Almost every proposed reform is met by the same criticism: "The principle is good, but it cannot be carried out. The movement is impracticable." Sometimes, doubtless, the objection is just. But we can all of us remember more instances than one in which actual experiment has shown it to have been groundless. *Perhaps*, if a fair test should be made of the practicability of protection, the objections now so confidently urged against it, might soon be consigned to the Limbo of Vanity, as were the arguments that a few years ago used to prove so conclusively to those who used them, the impracticability of freeing the Southern slaves. It is usually safer and more desirable than we are apt to think, to *test* the practicability of what is clearly right in principle.

2nd. If some of the objections to protection are now unanswerable, that does not make its practical test unwise. And for two reasons: In the first place, *actual experiment might nullify these objections*, as the experiment of freeing the slaves has nullified the objections that used to be urged (and some of them with great apparent weight) against sudden manumission. And in the second place, *protection may fail in some respects, and yet be wise and desirable.* It is objected to any legislation on this subject that no such description can be given of a patented fruit as would enable a "patent office clerk" to decide whether or not the patent was infringed. I do not see the necessity of leaving such a question to a patent office clerk. A committee of three intelligent horticulturists could easily be had in Washington, and they could generally decide such a question with ease. But grant that they could not, that this objection is unanswerable, still, sufficient good could be attained by such legislation to make it wise. Suppose a patent had been issued to Mr. Bull for his Concord grape. No one could have sold vines *as Concords* without his permission. And the name and the grape would have been so connected that the public demand would have been for *Concords;* not for something else, said to be as good, or even for the same grape if called by another name. In other words the patent would cover not merely the fruit, but the name; and the reputation of the grape would make the name a sort of *trade-mark.* And that trade-mark would have a pecuniary value to Mr. Bull, proportionate to the reputation of his grape. He would virtually have a monopoly of the market for the sale of *Concord* vines. Honorable nurserymen would not sell them without paying him for the right; and dishonorable ones (if there are such) would be debarred from selling them by their inability to offer them under their appropriate and popular name. And so Mr. B. could reasonably hope to secure an ample compensation for the good he has done the nation in originating this valuable fruit.

But my article is already so long that I must close with only a brief allusion to some of the benefits which it seems to me might be secured by horticultural protection:

1st. It would make our patent law legislation uniform and self-consistent.

2nd. It would be doing what all acknowledge to be just and right; or, in other words, what the originators of new fruits have an equitable right to demand.

3rd. It would save the community from the imposition of worthless varieties that could not secure a patent, and of old varieties sought to be disseminated under new names.

4th. It would secure to originators of new fruits a more adequate compensation for the time, labor and expense involved in their production. And in so doing

5th. It would give a new stimulus to the work of horticultural improvement, and thus bless the nation with the more valuable fruits and vegetables which would thus be produced. As our present patent laws stimulate invention, and confer upon us improved machinery; so, similar legislation, applied to horticulture, would tend to stimulate the production of new and improved fruits, and so enrich the nation with more desirable ones than those they now possess.

[We must class ourselves with the unlucky ones. We asked W. H. W. to point out the novel points in the Secretary Grape, for which the "protection" is claimed, but he was not sufficiently familiar with it. We asked him then to take the Concord, which he must know well, but, instead of responding to this simple request, he gives us a lecture on "rights," the substance of which has appeared in our pages over and over again. We make room for the paper, however, because it is written in fair and dispassionate style, unlike two other papers we have on

hand, from other parties, and which would sully our pages did they appear. Besides, there is the apparently novel suggestion of a "committee of horticulturists at Washington." But where is the real difference? If the "three" are appointed by the patent office, they may as well be called "clerks," as a "committee." It is hardly worth disputing about a name. A lively time these "clerks"—beg pardon, this "committee"—would have in deciding on the "novelty" of beans, peas, cabbages, tomatoes, grapes, raspberries, strawberries, onions, peaches, pears, apples, wheat, rye, potatoes, blackberries, plums, cherries, and what-nots, pouring in from Oregon and Maine, and from Florida and California—and many arriving a mass of rottenness! No, friend W.! we do not think this plan of having horticultural clerks decide the question of novelty, with fresh specimens before them, near as satisfactory as the plan of having the points of novelty expressed in language. We are in favor of "protection." Nothing would please us better than to see the raiser of good fruits, flowers, and vegetables, get well rewarded. We should be glad to know that every one realized $50,000 by his good luck or good work. We are willing to give these fortunate raisers the right to make this, before anybody else gets a penny, if such right can be secured; but we cannot stultify ourselves by asking Congress to let us try "something," when *nothing* is proposed.

As for Mr. Barry, we are quite sure he is as anxious to see the raisers of good things secured in their "right" to make something handsome, as we are; we see nothing in his quoted language to warrant any other construction, and we agree with him in doubting whether any "law" would do better for these raisers, than good business tact will do now.—Ed. G. M.]

EDITORIAL NOTES.

Hortensia.—A correspondent writes in reference to the recent discussion:—"De Candolle says, Commerson named our plants, first, Peautia, in honor of Madame Hortense Lepeaute, &c. If my *souvenirs* are right, the correct name was Lepaute, for I think I saw the name on public clocks in Paris, some fifty years ago, and I naturally suppose the man knew how to spell his own name. Now, why that difference in spelling a name, and a popular one, too? The fun of it is, that those differences in spelling that name, Lepeaute, Lepaute, Peautia, &c., all come from French authorities, botanists or others. That reminds me of the name of a well known plant dedicated to a French celebrity, 'Capt. Bougainville,' which in several works is spelled in *seven* different ways, by *seven* eminent botanists, and not *one* of them correct, and yet they were not *Frenchy*, but of all nations, English, German, &c. Now, if doctors disagree, what will students do? gardeners especially, who generally have not the means to identify the etymology, either for want of education or books to consult? Perhaps you will think I carry this digression too far; but if I insist on this erroneous spelling of authorities, it is because oftentimes *we* gardeners are laughed at for mispelling Latin and Greek names, with which we are unacquainted. For instance, we see in the catalogue of plants of leading establishments in Europe, such names as Im*a*ntophyllum, Im*a*tophyllum; Rhaphis, Rhapis, Raphis, a species of palm. How are we to tell which is which? Your correspondent is mighty correct when he says: 'We cannot all be perfect, yet I should think that school teachers ought to know how to *read*.'"

Plant Patents.—Two articles on this subject cannot appear in our paper, for no other reason than that they are abusive. W. H. W.'s letter is in striking contrast, and we have pleasure in finding a place for it. Whether our contributors agree with us or not, we cheerfully make room for what they have to say, but not if they forget they are gentlemen.

History of the Jerusalem Artichoke.—It has puzzled historians to trace the artichoke to its native home. Palfrey, in his history of New England, says: "The Indians raised a species of sunflower whose esculent tuberous root resembled the artichoke in taste." In reply to a note from Prof. Gray, Mr. Palfrey says he cannot give just now the authority for this statement. It is probably of little moment, for a sunflower with a root "tasting like artichoke" could be nothing having reference to the true Jerusalem "artichoke," the root of which does not taste at all like *the* artichoke.

An Account of Experiments for the Production of Hybrid Grapes. By Mr. Geo. Haskell, Ipswich, Mass.—Mr. Haskell is one of the most persevering of experimentors in the improve-

ment of the grape. In this pamphlet of eighteen pages he gives a detail of his forty years of work. He is now offering a large number of the best kind for sale in order that they may be tested in other locations. He is sending them out by numbers, which has been found by experience to be a great mistake. There is, however, no mistake in the good quality of some of his varieties, as we can testify to from personal experience.

The English Winter.—This seems to have been a rather open one. The Isle of Wight *Observer* gives lists of plants blooming all winter, as among the curiosities of the day.

On Parasitic Fungi. By Prof. T. J. Burrill.—There is no more valuable study than that which relates to microscopic fungi. It is gratifying to find so many Americans engaged in it. This little tract is from the *Bulletin of the Illinois Museum of Natural History*. It describes and figures many species found on well known plants. We congratulate cultivators that so good a scientist as Prof. Burrill is working so well in this direction.

An *Essay on New South Wales*, by G. H. Reid; *Railways of New South Wales*, by John Roe.—From Wiley, Publisher, New York.—The Australian colonies did good work for themselves by the excellent part they took in our Centennial. No one in America knew their resources were half so great as they are. The colonies are following up their advantage by issuing a series of works on their industrial developments, of which these are two. Those who desire to know how much New South Wales, the "mother colony," has prospered, will do well to get and study them.

The Nurseryman's Directory and Reference Book for 1877. By D. Wilmott Scott, Galena, Ill.—This, started by Mr. Scott as an experiment, has become a necessity to every one in the nursery business. It contains a list of the leading nurserymen, florists and seedsmen of the world, with notes of their specialties. The price is $10, and may be had of the publisher of the *Gardener's Monthly*, at this office.

The Industries of Philadelphia. By Lorin Blodget.—The intimate connection of Mr. B. with the industries of Philadelphia is well known. Few men have done more for their development, or to make their prosperous condition known. His position as Appraiser General of the Custom House has given him particular opportunities of knowing whereof he writes. In this all the different industries of the great city are detailed; the number of hands employed, value of products, and similar matters of interest being given. This is the second edition of the work, which was issued last year.

Catalogue of S. B. Parsons & Co., Flushing, L. I., N. Y.—An interesting peculiarity of this catalogue is the large list of Japan Maples, and indeed of other rare Japan plants.

Ellwanger & Barry's new descriptive catalogue of roses gives full cultural directions. Though so old a flower, there is always something new in rose management, and Ellwanger & Barry have endeavored to bring the subject down to the present time.

Catalogue of Hoopes, Bro. & Thomas, West Chester, Pa.—The number of catalogues that come to us is so enormous, that reluctantly we had to abandon "notices" for want of space—unless there were some remarkable peculiarity in it. In this admirable one the interesting point is the strict accuracy of the names. In this regard it may be taken for "authority" to decide disputed points.

The Meeting of the American Association for the Advancement of Science.—This will be held this year at Nashville, commencing on the —— of August. There are no classes in the community that take so much interest in science as the horticultural class. The meetings of the Association are always pleasant as well as intellectually profitable; and we are glad to find an increased number of horticulturists among these pleasant people with each recurring year.

Mr. Wm. Saunders.—We were very much surprised to note by the public papers last Summer that the salary of this gentleman in connection with the Department of Agriculture had been cut down considerably. The particular section with which he is connected is one of the most valuable to horticulturists in the whole Department, and Mr. Saunders himself one of the hardest of enthusiastic workers. No man in the whole series is better known through the whole country, or his knowledge and services better appreciated. During the Centennial he represented the government admirably. Never having so much work to do but that he was

found willing to try to do a little more, if it were possible for him to be so useful.

The papers are just now nominating this and that one for Commissioner of the Department. We have not heard that Mr. Watts will resign, and Mr. Saunders would be sensitive about his honor in seeking for a higher position unless his superior were to retire, or there was to be a vacancy in some way. We do not know that he would accept the position even if it were offered to him; but if there is to be a civil service reform—a progression of the deserving upwards, the President could not do better than give Mr. Saunders a chance. His salary should be restored, at least.

Death of Lady Smith.—This lady, distinguished herself as a botanist as well as being the wife of the great botanist and founder of the Linnæn Society, Sir James Smith, died recently at the age of 104, having been a widow for nearly fifty years.

Ages of Distinguished Men.—The London *Gardeners' Chronicle* gives the dates of the death of eminent Botanists and Gardeners, from which we select the following as more or less known by their works or through their associations to Americans:—

Charles Darwin,	Born	February	12, 1800.
H. B. Sausure,	"	"	17, 1740.
Decaisne,	"	March	12, 1809.
Achille Richard,	"	April	27, 1794.
Fahrenheit,	"	May	14, 1686.
Linnæus,	"	"	23, 1707.
A. de Fourcroy,	"	June	15, 1755.
Sir W. J. Hooker,	"	July	6, 1785.
Nees Von Esenbeck,	"	"	26, 1787.
B. de Jussieu,	"	August	17, 1699.
D. C. M. Richard,	"	September	4, 1764.
Dutrochet,	"	November	14, 1776.
Von Schlechtendal,	"	November	27, 1794.
John Ray,	"	"	29, 1628.
J. Curtis,	"	December	3, 1791.
Hedwig,	"	"	8, 1750.
G. W. Skinner,	Died	January	9, 1867.
Linnæus,	"	"	10, 1778.
J. A. Henderson,	"	"	13, 1872.
R. Sweet,	"	"	20, 1835.
Saussure,	"	"	22, 1799.
Miquel,	"	"	23, 1871.
Dr. Falconer,	"	"	31. 1865.
Theo. Hartweg,	"	February	3, 1871.
Dr. Schott,	"	"	5, 1865.
W. Griffith,	"	"	9, 1845.
John Evelyn,	"	"	27, 1705.
Conrad Loddiges,	"	March	13, 1826
Sir J. E. Smith,	"	"	17, 1828.
Endlicher,	"	"	28, 1849.
Le Notre,	"	April	12, 1700
Wallich,	"	"	20, 1854
B. Maund,	"	"	21, 1863.
Dr. Darlington,	"	"	23, 1863.
Louis Van Houtte,	"	May	9, 1876.
T. A. Knight,	"	"	11, 1838.
Dean Herbert,	"	"	28, 1847.
N. B. Ward,	"	June	4, 1868.
W. G. McIvor,	"	"	8, 1876.
Edward Newman,	"	"	12, 1876.
William Rollison,	"	"	18, 1875.
Sir J. Banks,	"	"	19, 1820
Allan Cunningham,	"	"	27, 1839.
A. de Jussieu,	"	"	29, 1853.
W. Curtis,	"	July	7, 1799
Wildenow,	"	"	10, 1812.
David Douglas,	"	"	12, 1834.
W. Forsyth,	"	"	25, 1804.
Wm. Penn,	"	"	30, 1718.
E. Meyer,	Died	August	7, 1858.
Thunberg,	"	"	8, 1828.
J. G. Veitch,	"	"	13, 1870.
Duhamel,	"	"	23, 1782.
A. H. Haworth,	"	"	24, 1833.
Van Mons,	"	September	6, 1842.
Robt. Thompson,	"	"	7, 1869.
James Veitch,	"	"	10, 1869.
Lady Paxton,	"	"	11, 1871.
Mirbel,	"	"	13, 1735.
A. Von Humboldt,	"	"	14, 1769.
A. L. de Jussieu,	"	"	15, 1836.
W. Donn,	"	"	17, 1827.
O. Swartz,	"	"	18, 1871.
Dr. Withering,	"	October	5, 1799.
Dr. Seeman,	"	"	10. 1871.
D. V. Schlechtendal,	"	"	12, 1866.
Dr. Welwitsch,	"	"	20, 1872.
Robt. Fish,	"	"	23, 1873.
Kemfer,	"	November	2, 1716.
E. G. Henderson,	"	"	4, 1876.
B. de Jussieu,	"	"	6, 1777.
Is. Geoff. St. Hilaire,	"	"	10, 1861.
Charles Morren,	"	December	17, 1858.
Ph. Miller,	"	"	18, 1771.
Warscewicz,	"	"	29, 1867.

QUERIES.

Hybrid Grapes.—Mr. D. S. Marvin, Grapevine Nursery, Watertown, N. Y., sends us an article, and a private note telling us he sends it to see if we have "backbone" enough to publish it. He will see by this that we have not, and the reason is that we do not think he is sufficiently acquainted with the subject about which he writes. He thinks it time we "ceased deceiving the public" about hybrid grapes—he knows that the "sap of our native grape is more or less distasteful to the Phylloxera, and therefore the French are using them for stocks." By the time he is able to write well, this young man will perhaps have learned that the Clinton, an American grape, is a greater favorite with the Phylloxera than any other variety, native or foreign, and that is for other reasons that it makes so good a stock. When he has learned this and a little more, nobody will have cause to make any reflections on either backbone or brains.

Tumble Weed.—An Illinois correspondent asks us the best way to destroy tumble weed, which he says is quite a serious pest in that part of the world, but we really do not know what tumble weed is. Perhaps the introduction of the tumble bug might destroy it. It is bad enough to be forced to learn a hard botanical name, but these local names can never be learned outside of the little circle that are about at the christening.

Contributions to the Magazine.—A correspondent speaks approvingly of the notes of General Noble and Mr. Ravenel on keeping tomatoes, and justly says, "if we all told the little we know, we should all know together a good deal in the end." Apropos of contributions, we feel proud of our last few numbers. They contain the thoughts and experiences of many of the best horticulturists in the country. We hardly know how the literary matter they give us could be horticulturally excelled.

THE

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DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

Edited by THOMAS MEEHAN.

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FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

Of all the Spring months May is the best for transplanting evergreens; it is the time when the young shoots are about starting into their season's growth, and the roots pushing at the same time, nothing or very little is lost by evaporation while waiting for the new fibers to grow.

Evergreen shrubs are not considered generally successful in our climate; but this is rather owing to our perversity in exposing them to the Winter's sun, or planting them in too dry a soil, than to any insuperable difficulty of climate.

This is especially the case with the Rhododendron, the culture of which has occupied considerable attention in our pages during the past year. These may be planted much later than other evergreens, as the numerous hair-like roots so bind the soil together that they come up with a better ball than other plants. When intelligently pursued, the culture of no plant is so easy as that of the Rhododendron. The intelligence required in the first place is to avoid lime. They will not do in limestone soil—no plants hate lime so intensely. We know of people who are well aware of this fact, and because they have no lime in their soil, thoughtlessly put them near lime cast walls where the rain and the weather bring lime into the soil. Those who would cultivate the Rhododendron in limestone soil should bring a little soil from a distance, and then the Rhododendron bed should be elevated a little, so that the drainage of the limestone ground shall not drain into it. Then a place must be selected where there will be no cutting winds. Independently of the lime objection, the side of a house is generally a poor place, as the cutting winds of Winter, generally "whistle" around the walls more keenly than in the full open ground. And lastly, the plants must not be set deep. It is better to set on the surface, bring the soil up around the ball, and hammer in firmly, than to put the roots much below the surface.

About the first week in May, residents of the Middle States commence to set out their bedding plants. The modern style of planting in masses affords great scope for a tasteful arrangement of colors, either in the same bed or by arrangement amongst a set of flower-beds. The ribbon style of flower-gardening beds in long, narrow, and winding strips and coils, is also popular for the same purpose. It requires, besides, good taste in arranging colors harmoniously, judgment to select those kinds that will continue in bloom the whole season, withstanding well the Summer drouth, and that will harmonize in habit and growth with one another.

As the plants in the borders grow, those in masses may be much improved by being pegged down over the surface. We can then train shoots where we wish, and thus cover the beds much sooner. Pegs for this purpose are best made by getting any straight shoots of trees, about one-fourth of an inch thick and cut into four-inch lengths, then splitting them down the

middle into two. These pieces are then bent in the middle like hair-pins. Pieces so split seldom break in doubling.

The first week in May is usually the time to



No. 1.

set out Dahlias. They do best in a trenched soil, say eighteen inches deep at least, and prefer cow manure to any other, when it can be obtained. If planted on thin or dry soils, they



No. 2.

will not bloom till near the approach of frost, when the chief enjoyment of the Dahlia is lost. It is best, where possible, to plant a duplicate of each kind. The Dahlia has not been as popular of late years as it used to be, but there are signs that its value in making a very gay scene in the flower-garden in Fall will be again recognized as it used to be.

Tuberoses should also be planted this month, but they like a warm, rich, sandy soil; though, like the Dahlia, they do not like dry soil. As a rule, Tuberoses that flowered last Fall will not do so this, but the offsets will the year after. Even apparently good bulbs will not flower unless the "hearts" have been well ripened. Many years ago, Mr. Bridgeman pointed out how good flowering bulbs might be detected from those that would not flower. As the secret is still unknown to many, we give illustrations here. No. 1, is the bulb that will not flower; No. 2, the one that will.

COMMUNICATIONS.

NOTES ON TREES, &C.

BY WALTER ELDER.

The Paper Mulberry, or paper-bearing Mulberry tree, botanically called Broussonetia papyrifera, is a native of Japan, and was introduced into British arboretums in 1751. Like all other plants with white milky sap, it is said to be deleterious to animal life, hence, itshould never be planted as a shade tree, near dwelling houses or stables. Insects seem to avoid this tree, and do not eat its leaves as they do that of others. Many know of the evil effects of the Paper Mulberry near dwelling houses. And in cities it has been generally cut down, and other trees set out in its stead. Ailanthus is also undesirable as a shade tree, as an offensive odor arises from its blooms.

Trees with large leaves and of rapid growth are the best to set near dwellings; such as Maples, Lindens, Sycamores, Horse Chestnuts, Oaks, &c., also fruit trees. The Eucalyptus globulus, (Australian blue gum tree,) is now highly applauded as a health imparting tree; and it is a valuable timber tree. Being an Australian tree it can only be grown in our greenhouses, except in a small portion of the Southern States where it does not freeze.

Evergreen trees are as beneficial in Winter as deciduous ones are in Summer, on account of their beauty and shelter. The odor of coniferous

trees is very agreeable. When one goes into a forest of Pine Fir, he perceives a sweet smell, and a feeling of gladness comes over him. It was the aim of the all-wise Creator, in making the herb and tree, to spring out of the ground, to purify the atmosphere for man, by the absorption of carbon and emission of ozone.

All garden plants with sweet-scented blossoms are health-giving; so are highly flavored pot-herbs. Celery grows naturally on marshy sea-coasts, and keeps off fevers from the inhabitants living there. A well stocked garden is a panacea for many human maladies.

PEAT AND RHODODENDRONS.

BY MR. S. B. PARSONS, FLUSHING, N. Y.

The experience of Mr. Beecher as related in your March issue, is entirely consistent with my assertion that the Rhododendron will succeed best in good garden soil. That which we consider a good garden soil on Long Island is a light, rich, alluvial loam. The soil of Mr. Beecher's country place we understand to be heavy clay.

The Rhododendron has a large number of small fibrous roots which eagerly enter into open and friable soil and are repelled by a stiff hard clay. To make the latter resemble the former, there must be a mixture with it of some light material. For this purpose peat is good because it contains some vegetable matter. It is not surprising that plants taken from the friable soil of Long Island, or the peat-beds of England, should languish in clay. Rhododendrons imported from England and sent out with balls of peat, will not grow even in our Long Island soil until they have had time to send out roots into the good garden soil around them. The treatment which Mr. Beecher gave his plants, was the best under his circumstances. The mulching was, however, an important element in his success. The drought of last Summer would have told severely upon the peat-bed, except for the mulching, the benefit of which is well-known.

The sum of the whole matter is that for a stiff clay soil any lightening material is good, but for a light friable soil any lightening material is injurious. The sun will pierce and burn it, will excite the roots as fever excites a sick man, and will leave the plant to the rigors of a cold Winter in a half sick state, in which it may either languish or die. If misled by the experience of English gardeners in the cool, moist climate of England, any have been induced to make a peat-bed in a light friable soil, their only remedy is mulching. Nothing else will save them from the inevitable result of their error. Our opinions are based upon an experience of thirty years, during which we have grown many acres of Rhododendrons without a particle of peat and in the open sun. We have always considered the peat and shade fallacies a great bar to successful Rhododendron culture. For his own soil Mr. Beecher's treatment is right; for many others it may be very wrong.

RHODODENDRONS.

BY DR. G. CHESTON, BALTIMORE, MD.

I have just read an article in your March number on the cultivation of *Rhododendrons*. The experience of its writer would seem to be conclusive, and he evidently so regards it, of *peat* soil being an essential requisite of success. My experience is not confirmatory of this position, and lest any of your readers, who desire to grow Rhododendrons, and cannot command peat, should be discouraged by this adverse testimony from so intelligent a source, I venture to send you this communication. About ten years ago, I consulted some professional gardeners, whose answers were: "however beautiful Rhododendrons may be, it is a vain effort to attempt their cultivation here, as they will neither stand our Winters nor Summers." I then consulted with Messrs. Parsons, and accepting their views as my guide, I at once ordered plants of them. I had no peat, and following Parsons' assurance that they could be grown without it, I put them in beds of good garden soil. They not only lived, but have grown vigorously, bloomed profusely, and are of course now large plants. I have since made repeated additional plantings with like good success, sometimes obtaining my plants from Parsons, and sometimes importing them from Anthony Waterer, England.

The first bed that I prepared was dug out two feet deep, and filled in with light loam. Since, it has been my practice to dig them three feet, but both have succeeded well. The soil used has been varied more than once, showing that success was not attributable to any peculiarity of the soil. My observation has led to this conclusion, that *peat* is not at all necessary, but that good drainage and *location* are essential condi-

tions to success. They must, in my opinion, be screened from the severe north wind in Winter, and should have at least partial shelter from the mid-day sun in Summer. Years ago I made trial of one bed, without either of these conditions, and I lost all the plants in it. Most of my beds have this protection in both seasons, afforded by clumps of Evergreens. Those that have not, I shelter by simply encircling the beds through the Winter with corn stalks set on end. I mulch them heavily with leaves through that season, and have used on them satisfactorily a lighter covering of spent tan in Summer. I have a few large standard plants that are valuable and growing singly in conspicuous positions. Lest the foliage of these should be at all singed by severe frost, I usually put over each of them a large box made of light boards, partially open on one side; though this house-covering is not essential to their security, if the plants are of the more hardy varieties, as I have proved by its omission. I do not hesitate to top-dress with well-rotted cow manure, when it seems to be needed. The varieties I am growing, embrace most of the shades of colors, from the Candidissimum to the Atrosanguineum.

The situation of my grounds is elevated and cold. Two winters since, the thermometer reached 15° below zero, though such extreme cold here is unusual.

Excuse the length of this communication, and of course you will decline publishing it, if you do not think further testimony useful on Rhododendron culture.

THE CHINESE AILANTHUS.

BY GEN. W. H. NOBLE, BRIDGEPORT, CONN.

A new use found for an old thing, equals an invention. Mr. Veitch, of New Haven, does just this, when he ornaments the border and the lawn with massed tropical foliage of the Ailanthus, and close pruned shoots. It seems a very simple thing to do. But through just such shrewd simplicities, mankind gain their best advance. Right outside the moments of thought and daily life, we come on new paths, and find new uses for things condemned to the rubbish heap and the dump. To such simple doers as Mr. Veitch, more than to heroic arms, we owe our homage, and should lift the histories of our race.

This use of the Ailanthus hints a like treatment and duty for the Black Walnut, the Butternut, the Kentucky Coffee tree, and others of their fern-like foliage. We may gain another style in wealth and breadth of vegetation, on closely cut back shoots of the Catalpa, Paulonia, and other rankly growing, large leaved trees. So in herbaceous plants; the rich rank spread of foliage which we now owe to tender broad leaved growers from the hot-house or the nursery, we may have from the outcasts along the wayside and the hedge. There are lots of common things, like the Mullein, Elecampane, yea, even the Burdock, the Thistle,which in our rich borders, will surprise us by their stature and expanse of leaf.

A doubting smile, if not a sneer, may greet this mention. But if the Burdock or Elecampane had come from China, the doubters would buy them at a dollar a root! Now, let no one with money, neglect the broad and lovely foliaged plants that multiply so fast, but have kindly thought for that thrift, which makes graceful use of common things.

And now that Mr. Veitch's new use for the Ailanthus bespeaks a respite from its threatened banishment, let's wait a bit. If we possess our souls in patience over it's bitter breath and nauseous flowers, we may by and by find out for it, as we slowly do for almost all that grows, new fitness for human use. The hue and cry of prejudice is a blind leader of the blind. If there is a real Upas tree, well stored with death, and breathing it on the air, I have no thought that it was made to poison or to taint, any more than the Ailanthus. Behind such powerful odors, back in the sources of such sickening breath, stores of secret virtues await the chemist to be set apart and revealed to kill when needed, and to cure with care.

Now the Ailanthus is said, in China, to feed a silk-worm, only rivalled by that which lives upon the Mulberry. To be sure, no Yankee worm or bug was ever known to take the first bite of its leaf. But doubtless, some one may be evolved, or immigrate to us from the Heathen Chinee. Such as relish the leaves of the tobacco, or tomato, ought not to go back much on Ailanthus fodder. Besides, it would not be wonderful, if a bark or wood so bitter should yet prove a beautiful source of tannin, or of some febrifuge as astringent and curative as quinine. Have patience with this almost discarded favorite, and its seeming faults may yet yield large usefulness to mankind.

Its wood is said to have a fine satin tinge, and to make in veneering or inlaid, graceful cabinet-work. For chests to preserve furs and woolens, it must rival Cedar or the Camphor wood. I doubt not it may equal the Palmetto, in resistance to the remorseless worm which honeycombs timber wherever reached by the ocean's salty tide. Let the Ailanthus be well tried in all these directions, before you take up a howling Hoodlum's cry over this other Heathen Chinee.

But beyond this, there is some mystery deserving our notice, about the Ailanthus. Johnson says there are two species. The glandulosa whose flowers are so nauseate to most people, and whose suckers are so annoying. The other variety is not named or described, and I think it must be in this country, and bear the character I am about to give. The glandulosa I have never known to vary in its tinge of leaf or seed pod till stricken off by frost. But the other kind is therein most marked and lovely. There are trees of this latter Ailanthus hereabouts, bearing the same style and growth with the glandulosa, but which, from along in August, and stretching into frost, gradually take on leaf and seed pod, a rich tint of gold running into scarlet. Sometimes the shades are richer and more brilliant than at others; perhaps owing to the season, or the feelings of the tree. The dryness of the period has possibly something to do with this. At any rate, in Autumn, they are very marked ornaments of the landscape, and tower into grand bouquets. Now, are these two varieties in this country, and is this one I admire, that other? Will the *Monthly*, or some one answer, and tell us its name?

PANSIES.

BY WM. C. L. DREW, EL DORADO, CAL.

The Pansy, though an old favorite, is very seldom met with in flower-gardens as well grown specimens; and although you will find what is styled "pansy plants" in nearly all collections, they very seldom deserve the name, being long straggly careless-looking plants with perhaps half a dozen flowers, whereas, they should be nice close plants with twenty or thirty fine large blossoms.

With the Pansy I have had the best of success, and as it may interest many of the readers of the *Monthly*, I shall give my mode of treatment, by following which, any one can have success, provided they have good seed.

The first of May, or thereabout, I plant my seed. I always get the best of seed to be had; good seed will always cost more than poor seed, but it is the cheapest in the end. I plant in very light rich soil, in a warm sheltered place. After planting I cover with a paper until the seed comes up, when it must be removed; when they have four or five leaves, transplant to the bed where wanted; have the soil of this bed rich and light; in transplanting, disturb the roots as little as possible; if a little well decayed manure is put in each hole it will help wonderfully.

The plants should be kept clean, the bed free from weeds, and the soil should always be moist, never dry or very wet; if green lice get on the plants, and they sometimes do, make a wash of strong soap suds, and wash the plants with it, using it when luke warm; one application will be sufficient; wash both sides of the leaves, and in a day or two wash off with clear cold water.

The plants will usually make a good growth by September, and many will blossom during the Summer. In September trim the plants back close to the root, leaving the branches about an inch or so long, when in a few weeks they will all come out nice and close. By this treatment you will have close compact plants, that will bear the Winter; for while six plants out of ten will die if left untrimmed, you will not lose one in twenty if trimmed, because they are young and strong, while those not trimmed are weak from flowering. Trim them every September, and you will have nice plants next year.

EDITORIAL NOTES.

ZANTHOCERAS SORBIFOLIA.—We have given full accounts of this new small tree from English sources, and the promising accounts of its beauty from English periodicals. It will be of additional interest to our readers to know that Mr. John Saul finds it quite hardy at Washington.

EFFECT OF WIND ON EVERGREENS.—There was never a better illustration of a point we are continually urging—that it is wind much more than frost that is so destructive to evergreens, and gives a tender character to many beautiful varieties—than the equinoctial storm of this season afforded. The thermometer was only ten de-

grees below the freezing point, but the injury to evergreens was greater than at any time through the Winter, when the thermometer was at zero.

ROSE MAGNA CHARTA.—A beautiful colored plate of this rose in the London *Florist and Pomologist*, represents it of a crimson rose color, and measuring *five and a half inches across*. It was raised by W. Paul & Son.

LONICERA FRAGRANTISSIMA.—There are few things more beautiful than the upright honeysuckles, especially the Tartarian. There are many varieties, with various shades of color in the flowers and in the pretty berries which follow. A species allied to these well known kinds is Lonicera fragrantissima It is not only as beautiful as any of the others as a bush, but the flowers are as sweet as jasmine. We saw a fine plant on the grounds of the late Alfred Cope, a few years ago, and one in Baltimore, but it must be scarce in the trade.

EARLY FLOWERING PLANTS.—With the returning love for hardy herbaceous plants, it is well to make notes of those which are the first to flower. We noted this season that the rare Fritillaria pudica is only a few days after the common snowdrop. The Moss Pink, Phlox subulata, comes out a few days afterwards. Cerastium arvense is but a short time after this, and then comes Cerastium Biebersteinii. The *Garden* has the following about Anemone fulgens:

"This early and brilliant flower has been in bloom in quantity in M. Henri Vilmorin's garden at Verrières, near Paris, for the past five weeks. It is impossible to over-estimate the value of this plant as an early Spring, and even a Winter flower in mild seasons. I have lately had the opportunity of seeing in Paris some vases solely filled with the cut flowers of this Anemone, and the effect of the flowers by artificial light was almost as fine as it is in the open ground in the sunlight."

LARGE SEQUOIA GIGANTEA.—It is provoking to read of the fine trees of these they have in England, when we cannot grow it here in its native country. The *Journal of Horticulture* gives the following account of some in that country:—

"We are informed that the HEIGHT OF WELLINGTONIA at Cotlands, Sidmouth, is 42 feet, the circumference of its stem at its junction with the ground being 10 feet 4 inches, circumference of lowest branches 80 feet. The sizes of other trees which have been forwarded to us are as follows:—A tree at Killerton 44 feet high, circumference of stem 10 feet; at Poltimore a tree is 60 feet high; a tree in the cemetery at Bath is 40 feet, and one at Beauport near Battle 40 to 50 feet."

The only place we ever knew it to do well was at Ellwanger & Barry's, of Rochester, N. Y. We shall be glad to know whether it still remains satisfactory with them, and whether of the hundreds that have been planted in the East during the past twenty years, any one else has a good specimen.

GREEN HOUSE AND HOUSE GARDENING.

SEASONABLE HINTS.

"L." of Cazenovia, New York, asks how she shall treat palms that have been growing as room plants all Winter, and for a list of palms suited to window culture. As the question is a seasonable one, we bring it in here. These palms and indeed all leafy plants of a tropical leafy character, do remakably well turned out of the pots or tubs, and planted in the open ground during Summer. A place exposed to the full sun is the best, as they rather like our Summer heats, and if a rather damp soil—one that is not swampy however—can be selected for them, so much the better. They "lift," as gardeners say, very well in the Fall, and go on growing almost as well, as if not taken out of the pots at all. There is scarcely a hot-house plant of any kind, that does not enjoy this planting out in the ground in Summer time, and then they add so much to the charm of the pleasure ground during that season. It is no uncommon sight to see half a dozen men tugging at a big aloe or some other thing in a huge tub, and a ton of dirt, when

the plant itself might be taken out without much trouble, planted in the ground for the Summer, and set in a tub again with new earth in the Fall.

In regard to a list of palms that thrive well in rooms, there are indeed but few which will not do well. We know a lady who has had for eight years a Date-Palm which has done duty every Winter in her parlor. In the room where we are now writing, in a tub eighteen inches over, is a Banana which was taken up out of the open ground, and put into the tub last Fall. It has been standing in the middle of the room ever since, and though far from the windows has made three large new leaves. In a little while now, it will go out into the open ground again. Last year it sent out a bunch of flowers, but not early enough to mature fruit before frost. The various kinds of bananas we regard as among the best of window palms, and are admirable for Summer decoration. All the species of Chamærops, to which our Palmetto belongs—the Sabals, Latania, Seaforthia, the various kinds of Areca, Livistonia, several kinds of Thrinax, the Zamias and Sago Palms, we feel safe in recommending. But we are sure there must be more that would do well as Winter window-plants, and grow out in the open air in Summer, and of which our palm-growing friends could give us a list. Palms, of course, are more expensive than ordinary plants, but then when one once has a plant, it never decreases in value, and will always bring its cost.

While taking this care of the tropical plants, we must look up different quarters for those from cool countries. There are the Primulas, Auriculas, Pansies (if we wish to keep some kinds over), Cinerarias, Calceolarias, and numerous things which do not like much heat. Many Australian plants are of this character, as well as those from Alpine and high northern regions. It is not so much the heat that worries these plants in our Summers, as it is the dryness of the atmosphere. We may have some day Alpine houses for these plants during Summer; at present the best quarters for them is a cool frame.

COMMUNICATIONS.

NASTY GREENHOUSES.

BY REV. E. P. POWELL, CHICAGO, ILL.

There is no milder word for it. They are superlatively and emphatically nasty. It is impossible to remain in them for half an hour without being poisoned. The air you can determine to be charged with spores that attack the human as they do the vegetable tissue. Green mould is thriving on pots and on brick walls and on partly decayed boards. Pumps work in sloppy corners and rotten troughs. The plants are covered with fungi as well as innumerable insects. These latter do what they can to transform vegetable decay into animal life. The plants strive to use up the surplus of carbonic acid. But both work in vain. There is but one thought in the mind of the owner, to force the growth of as many plants as possible, and then send the withered diseased things out into the pot windows and cases, or conservatories of our homes. The amount of disappointment that follows is great and shameful. A single plant from such a carnival of filth, diseases all one's choice specimens, and the labor of years. I have no words to condemn the loathsome stuff that is shipped about every Spring, without regard to our pleasure or health. It has been a sore pecuniary loss to me; and a vexation of soul that nothing could compensate. There are thousands who give over the culture of plants "because they cannot make them grow." The secret of failure lies in thrips, and red spider and lice of every species. Out on nasty greenhouses.

CHAMÆDOREA.

BY MANSFIELD MILTON, CLEVELAND, O.

A genus of beautiful slender growing palms; natives of tropical America, forming in their native country masses of underwood. Male and female flowers are produced on distinct plants. The undeveloped flower spikes being used by the natives as a culinary vegetable. Some of the many species make excellent subjects for dinner-table decoration, and in Europe are greatly in demand for this purpose. They are most at home growing in a well shaded house, their leaves being very easily injured when exposed much to the direct rays of the sun. For soil, they succeed best in peat having a good mixture of clean river sand; and as they require abundance of water, thorough drainage is indispensable. During the hot Summer months they thrive best, standing in a flat filled with water. A few of the best for general cultivation are the following:—

C. Ernesti Augusti.—The leaves of this species

are entire, about a foot broad, and nearly two long, of a bright dark green color. The flower spikes of this species greatly enhance the beauty of the plant, they being of a bright yellow color.

C. elegans.—A most desirable species, elegant in form, and of a hardy, vigorous constitution. The pinnate leaves grow about four feet long, the leaflets about eight inches long and one broad, and are of a dark green color. The general habit of the plant is beautifully pendent, and altogether a very beautiful plant; native of Mexico.

C. Arenbergii.—One of the most common species in cultivation and a very attractive plant. The stem is slender, the leaves pinnate, about three feet long, the pinnæ about twelve inches long and four wide, of a bright green color. This species is very easily injured in a house where the bright rays of the sun are allowed to enter unobstructed; it, therefore, should be grown in a well shaded house.

C. scandens.—This is one of the most slender growing palms, being of a climbing habit, after it attains the height of six feet. Leaves are pinnate, about two feet long, the leaflets about one foot long and one inch broad, and dark green in color; the leaf stalks are of a glaucous green, which greatly increases its attractiveness; native of Mexico.

C. Sartorii.—A beautiful plant, having pinnate leaves about three feet long, the pinnæ being about ten inches long and two wide, the color is bright dark green. It makes a fine plant for table decoration.

C. Warscewiczii.—A slender growing, beautiful palm, having long pinnate leaves of a light green color; native of Guatemala.

C. graminifolia.—This graceful species deserves a place in every collection, and whether used as a decorative plant for the greenhouse, or for the dinner-table, it is alike beautiful. The leaves are pinnate, about four feet long, the pinnas about a foot in length and very narrow; they are of glaucous green. Its hardy constitution and adaptability for bearing with impunity most any position, make it a very valuable acquisition; native of Costa Rica.

NOTES ON A SUMMER TOUR.

BY WM. SUTHERLAND, PHILADELPHIA.

The seed store of H. A. Dreer, on Chestnut St., Phila., is complete in all the regular departments of the seed trade, and has in addition a greenhouse 60x15 feet wide on the top; the whole establishment being heated by one furnace, in the interior of which a dense coil of two-inch pipe is placed, from which hot water is conveyed by four-inch pipes through the different stories up to the greenhouse on the roof and returned in the same manner. Here every precaution is taken to guard against fire. A large vat on the roof is kept constantly filled with water, from which pipes with hose attached are introduced to every floor, so that at almost any moment a supply of water can be obtained sufficient almost to deluge the building. An improved elevator carries you up or down to any department of the establishment you may wish to visit, without the exertion of climbing the stairs.

The seed farm and trial grounds, known as the Spring Grove Nurseries, are situated at Riverton, N. J., about eight miles from the seed store already mentioned, but so pleasant is the trip by rail or steamboat, that it does not seem half the distance, and it will amply repay any one interested in horticulture, to inspect them. Here, at the time of my visit, we saw a very healthy stock of fruit, shade and ornamental trees, shrubs, evergreens, roses, small fruits and esculent roots scattered over some ten acres, while ten acres more were devoted to raising vegetable seeds. Nearly eight acres were in Gladiola, Lilies, Tuberoses and other bulbs, while six acres more were in flower seeds, of which the verbena beds occupied nearly one-third, embracing one of the largest and best collections of that useful bedding genus it has been my fortune to behold. The glass structures consisted of fifteen greenhouses, with 25,000 square feet of glass, heated by Myers' new patent boilers, while at least two acres were covered by frames and sashes, one-half of which were occupied with planted out Crotons, Dracænas and Marantas, many of which were of the newest kinds. This system of growing stove-plants may be new to many of your readers, and therefore I will describe it in detail. After the frames are no longer wanted for bedding plants, the soil inside is dug out to the depth of a foot below the bottom of the frame, and filled in with a compost of peat soil, sand and decayed cow manure; the sashes are whitewashed on the inside, and the young Crotons, &c., are planted out one foot apart, and kept well watered. Very little air is given, except in the middle of the day, and healthier, better colored plants I never saw. These, of course, at the approach of cold weather, are carefully

lifted, potted and removed to the greenhouses, for sale. Among the Dracænas, I noticed some fine plants of Imperialis, Hendersoni, Cooperi, Baptisti, Gilfoylii, Veitchi, Dennisoni, Nigrescens, and Elegans Rubra—the last named appearing to be of a very dwarf habit; of the Marantas were Barquinii, Fasciata, Vandenheckel, Regalis, Makoyana, &c.; the latter seems to be one of the finest and most distinct of the genus. While to describe the numerous varieties of Crotons, would occupy too much of your valuable space, suffice it to say that the leaf markings and shades embraced everything peculiar to the family. My attention was next called to the Pelargonium beds, which were very fine; prominent among the sorts, being Marshal Mac Mahon and Black Douglas, two bronzes which to my mind stand strong sunshine better than any other variegated varieties. Kœnig Albert, an ivy-leaved double, George Sand and the Ghost, the best double whites yet introduced, and Guillon Mangilli, with very large, double violet-crimson flowers, a first-rate sort; also Peter Grieve, the most vigorous in growth, and the finest habit amongst the golden tricolors. I observed a large circular bed of tropical appearance, planted with Musa ensete in the middle, surrounded by Cannas lessening in height towards the sides, and alternated with Wigandia caracasana. Prominent among the ornamental grasses were numerous specimens of the new rose-colored Pampas grass, (Gynerium carmineum Rendatleri,) the flower stalks of which attained the height of twelve feet or more. Another striking object which came under my notice was a beautifully variegated Tobacco.

I found one greenhouse, about 100x25, fully devoted to Camellias, those in the centre part planted out with a surrounding table, covered with smaller ones in pots. Another house was devoted to the production of rose-buds for bouquets, by far the most numerous sort being Jean Pernet, considered for the purpose superior to Marechal Niel. There was a house filled with Begonias in very great variety of species and coloring, and another of Caladiums, of which the various and richly-colored foliage was absolutely gorgeous. In the Palm house were some fine specimens of Areca aurea, Lutescens, Rubra and Verschafelti, Chamærops excelsa, Giesbrechti and humilis, Livistonia, Hogendorfi and Olivæformis. Mr. Dreer, we understand, makes the production of these a specialty for window and table ornamentation, and nothing could be better. Lygodium scandens, a climbing fern, was grown in great quantities, intended as a substitute for the "Smilax," (Myrsiphyllum,) which we think it is likely to supersede. Adjoining the Palmery, was a fine lot of other ferns, notably Pteris argyræa, tricolor, nemoralis variegata and rubro-vena—in this connection I may mention a great variety of very healthy Selaginellas. An objection is often urged against the interesting and useful Tradescantea repens vittata, that it so often throws off its stripes and reverts to its normal plain green coat. Mr. Dreer has succeeded to a great extent in obviating this by growing it in sifted coal ashes, pure and simple. Many other objects and matters of interest might be mentioned here, but I fear I have mentioned too much already for the pages of the *Monthly*, and the patience of its readers. I cannot, however, conclude without tendering thanks to Mr. George Gross, the intelligent foreman at the Spring Grove Nurseries, for his kindness and attention.

PLANTS WHICH ENDURE DRYNESS.

BY A. G.

Having spent some Winter months in Nice, France, the plants in the vicinity of which are subject to long spells of drought, I thought, we, who cultivate plants, might take a hint from the mode, and kind of plants cultivated there. Excepting the moisture from the sea, there was nothing to refresh them, but a brief rain-storm, at long intervals. The sandy soil, however, soon absorbed all the water that fell in these. The regular rains come in Fall and Spring, and it is not unusual for these to vary considerably as to duration.

At the head of the list of plants flourishing under such circumstances, of course, stood the Cacti and Aloes, which near Nice remain out during the entire Winter, as the frosts are rare, and slight. These make surprising growths to eyes accustomed to the small oval of the Opuntias of the greenhouse, or the Aloes kept in vases. They are often of magnificent proportions, the Aloes very stately, with leaves standing up five or six feet in height, and the large Opuntias, (with ovals twelve inches in length,) still higher. Next to these were the Zonale Geraniums, which reached above the highest fences, or grew here and there, as hedges, their Winter appearance not being at all attractive, as their

limbs were long, and the leaves far apart, and flowers none. Long lines, many feet in length, of a strong-growing Mesembryanthemum, hung over high walls, and down the sides of vases; the stem that issued from the earth having the appearance of a dry whip-cord. Iris grew in all the terraced gardens, the large blue, and the large white, serving for borders on the edges of the terrace, while the small varieties were set everywhere. On the high dry hills, Mignonette and Sweet Alyssum blossomed the Winter through, but both scentless.

Towards Spring, we found on banks by the seashore, single red stock Jillies, also the young leaves of a wild Gladiolus, and on the hills Wild Thyme, Rosemary, &c., which were so beautiful in the size and wealth of their flowers, as to be almost unrecognized. Mallows, a sort of single Chrysanthemum, resembling an Ox-eye Daisy, (on a large scale,) and an Echeveria bearing a plume of yellow starry flowers, grew wild among the rocks. Beside these grew single Anemones, of various tints of a purple blue, or scarlet, shading into rose, or pinkish-white. Most of the Anemones grew on the tops of the highest hills; but occasionally they were seen among the grass of the terraces, which fronted the Mediterranean. In the valleys, sweet scented blue Violets, English Primroses and Daisies "held sweet riot." The meadows also were white with Daisies, or golden with great disks of Dandelions.

Very large-flowered Pansies and Chinese Primroses bloomed beautifully in the gardens; in March, Acacias, too, in several varieties, hung out their long drooping clusters of yellow tassels, which set on the background of their exquisitely fine and graceful leaves, made them a joy to see, The Pepper-tree, too, with its fern-like leaves, six or seven inches long, and its flowers like a bunch of current-blossoms, made a pretty sight. but not a pleasant companion for the sunshine, which caused it to emit a powerful odor of black pepper. Even the leaves could not be placed in a warm room without producing a sense of discomfort or suffocation. Heliotrope bloomed all Winter, and was injured but temporarily by the few frosts of the season. Veronicas sent up long plumes, and took on a grace unknown with us. Laurustinus also bloomed well. The roses of the gardens kept dormant till early Spring, when they were closely trimmed. They soon grew with great rapidity and sent up long shoots and a profusion of leaves. They were said to bloom with great luxuriance, but we were not at Nice late enough to see it become the "bower of roses." The German Ivy also flourishes so freely as to cover arbors with its golden flowers, and present to the new-comer quite a novel appearance.

On the top of a high hill in the vicinity of Nice, stands a singular old Chateau, approached at one end by a double flight of steps. These descended into a garden, so old that the plants seemed veterans of a by-gone day, and the statuary so grimy with dust and age, and so buffeted by storms, and the lapse of years, that here and there an open wound disclosed the hollowness of their classic forms, and rendered the heroic air and attitude into a burlesque on their ancient world of pretension, or as ornaments to even modern eyes. In the rear of the Chateau stood an out-building, over the plain surface of which grew a large Bougainvillia, which in the latter part of December was covered with rosy-lilac bracts. It was a magnificent sight, and drew many visitors. It was slightly injured by the two or three frosts of the severe Winter in 1874. In front of this Chateau stood the finest Palm of Nice, laden with long clusters of fruit, resembling in size and appearance, a large Damson Plum, the color a purple red. The Date-Palm does not perfect its fruit at Nice, the heat not being sufficient, nor do the leaves grow with much luxuriance, and these palms seem, indeed, what they are, exiles. Still in all gardens of much pretension appear Palms of this and other varieties. The gardens of Nice are quite elaborate in plan, this being as true of small gardens, as of the large; and give the effect of enlarging the grounds, instead of diminishing them. They generally contain a covered arbor, a shaded walk and curious cozy nooks. The walls, which are high, are covered with trained vines or roses, so as to be completely hidden. In the garden attached to the chapel erected in memory of the eldest son of the Czar of Russia, are a series of green wire arches many feet in height dividing the grounds from those adjacent. These are covered with vines, each arch forming a framed picture of the mountains and hills opposite.

Cacti were used with much effect in the gardens, and were often placed in the point of a bed, the smallest in the front, and the others according to size, till four or five feet in height were reached. The Agave arbre was frequently planted in rows, in beds approaching the house, and when its offsets were allowed to increase about it, and towards Spring its fine plume of

brilliant scarlet flowers, shot up like a flame, giving it a gay and unique effect. Chinese Primroses, Auriculas, Pansies, &c., were plunged in the garden in pots, and removed when the bloom was over.

We saw but one garden in all Nice which showed by its shining verdure, that it was regularly watered; the rest were covered by the constant and daily repeated showers of dust, which lay ankle deep on all the roads, and seemed sprinkled on every tree, shrub and flower, and even to lie inches deep on the landscape, till "dust we are, and unto dust we shall return," became a solid conviction. This state of things is not wonderful however, when the scarcity of water is known, and that the washer-women of Nice are compelled to do the most of their washing in the waters of the sewers, where they discharge into the sea.

The gardens, as far as we could learn, were attended by contract, at a certain sum per month. Blooming plants were supplied and others substituted when the bloom was over, and the garden cleansed and weeded. The paths were covered with coarse sand which was raked over at every period for cleaning. We could never find a reason for this constant disturbance of the paths which are much pleasanter to use when firm.

The stock jillies and wall-flowers of Nice were very fine; the blossoms being large, and of unusual colors. We saw stock Jillies so dark as to be a blackish purple, and white ones so large and so full of blossoms as to excite admiration and surprise. In the Jardin d'Acclimation, near Nice, we saw fine scarlet wall-flowers. Afterwards, in Paris in the grounds attached to the Government Greenhouses, we saw blue ones. Polyanthus Narcissus were cultivated in great variety, and also grew wild.

Among the plants flourishing in this dry and peculiar climate, I append some not mentioned above, which are taken from a list in the work of J. Henry Bennel, M. D., called "Shores of the Mediterranean as Winter Climates":—

Maratime Squill,	Ranunculus,	Lantana.
Cineraria maratima,	Ixia,	Abutilon.
Carnations,	Sparaxis,	Datura.
Q. Marguerite,	Salvias,	Linum trigynum.
Pelargonium,	Lavender,	Petunia.
Marigold,	Valerian,	Cyclamen.
Arabis,	Daphne,	Camellias.
Silene pendula,	Spiræa,	Azalcas.
Nemophila,	Achillea,	Begonias.
Crocus,	Erica,	Bignonias.
Snow-drops,	Nasturtium,	Verbena.
Hyacinths,	Habrothamnus,	Ciestus, &c.

GLADIOLUS AND CANNA.

BY W. C. L. DREW, EL DORADO, CAL.

In the above-named plants we have two of the finest decorative plants for the flower-garden, or for a bed cut out in the lawn. As every one knows that has cultivated the Gladiolus, the only thing lacking to make it a perfect ornament when grown alone, is a handsome foliage; the foliage of the Gladiolus is very meagre and not at all beautiful; consequently, to have a fine bed of these plants is, and always will be, necessary to grow them among foliage plants. I have found none better than the Canna.

Among Gladiolus' we have flowers of nearly every hue, from the pure white to the bright, dazzling scarlet; and as there are between two and three thousand named sorts, varying in price from ten cents to ten and twenty dollars, it will be no trouble for all to select kinds suitable to their circumstances. A few of the very best are Lord Byron, El Dorado, Reine Victoria, Le Poussin, Imperatrice, La Fiance, John Bull, Ophir, Berencie and Felicien David.

Gladiolus bulbs should be planted in light, rich soil, but not in contact with fresh manure; plant them three inches deep and six inches apart. They must have full sunshine and plenty of water when coming into bloom.

Cannas are strictly foliage plants; the blossom is neat, but secondary to the foliage. We have some two hundred varieties now, the foliage varying from pure light green to deep bronze, some varieties having pure and some variegated foliage; they can be raised from seed, or roots can be saved and planted. Seed should be soaked for an hour in warm water before planting. Roots are the quickest way of growing them; these should be planted as soon as frost is over, in light, rich soil.

To have a good effect, plant in a circular bed; plant in the center four Gladiolus bulbs, high growing varieties; then a circle of Cannas, another circle Gladiolus, and so on; edge the beds with Coleus and daisies. Plant high kinds in the centre and dwarf at the outside.

EDITORIAL NOTES.

PANDANUS UTILIS.—Not only are Aloes (Agaves) often slow in blooming—many of the rare inhabitants of the greenhouse have a similar

character. We do not remember seeing Pandanus utilis in flower; but one, in Mr. Henry Shaw's Missouri Bot. Garden at St. Louis is now throwing up a flower spike. It is twenty-five years old.

TRACHELOSPERMUM (RHYNCOSPERMUM,) JASMINOIDES.—We recently noted that this was one of the best of white flowering late Winter climbers. Confirming our opinion, we find a magnificent specimen trained along the apex of the roof of one of Mr. Conrad Kirckner's greenhouses, which was profusely blooming along a length of fifty feet. As it flowers before Easter, when sweet white flowers are in so much demand, Mr. K. who is a florist, finds profit as well as pleasure in the flowers.

IMPROVED CINERARIAS.—On a recent visit to the nurseries of Miller and Hayes, we were impressed with the great change which has been made in the Cineraria of late years. Some of these changes are simply changes—others are beautiful improvements. There are kinds with a dwarf habit, and with heads so large and flat, with each flower packed so closely together as to look like the tremendous "bouquets," one can buy at a street corner for a "quarter." But the broad, round, ray florets, and the decisive and boldly-marked colors of many of the forms can truly be termed beauties. Instead of these compact bunches of flowers, if improvers would aim at a little gracefulness of form in the plant growth, as well as good firm petals and harmonious coloring, we think this good old plant would be more popular with tasteful people.

FLOWERING OF AGAVE SHAWII. — This new species, named after Mr. Shaw, the well-known and generous proprietor of the Botanic Gardens of St. Louis, is about to flower there. It is but floral justice that a plant so named, should honor the choice by first flowering in these grounds.

HYACINTH LEAVES.—A newspaper paragraph says, that the leaves of the Hyacinth, cut off near the bulb, will make new bulbs as Geranium leaves do.

QUERIES.

PROPAGATING HYACINTHS FROM LEAVES.— A. S., Cleveland, Ohio, writes:—"I notice in a Cleveland paper, that a gardener of Berlin has made the discovery that Hyacinths may be propagated by their leaves; in cutting them close to the bulb, places them in a saucer and covers with a thin layer of sandy leaf mould. The saucer having been placed in a greenhouse, the extremities of the leaves will begin to turn dry in about eight weeks, a sure sign that bulbs are growing out of them. Will you give us, Mr. Editor, your opinion about it through the *Gardener's Monthly?*"

[We know of no reason why the statement may not be entirely correct. But it will be of little practical use to Americans who do not raise the bulbs for propagation. They increase by offsets, as fast as any one in this country needs to raise them.—Ed. G. M.]

MONSTROUS ABUTILON. — H. H. D., Wilkes Barre, Pa., writes:—"I enclose you a flower taken from an Abutilon. Will you please give me the variety and state whether it is usual for them to flower double?"

[Two perfect flowers from one calyx of Abutilon vexillarium. It would be of great interest did it always come so. But they are of much the same character as double-yolked eggs.—Ed. G. M.]

FLOWERING OF PRIMULA.—S. O. K., Jackson, Mich., with an interesting specimen, says:—"In noticing your reply to inquiries of H. L., Danville, Va., about Chinese Primroses, I conclude to send you a flower-stem of a seedling I have, which has been in bloom about seven months, and the trusses average from three to five whorls. It is a very pretty single variety, and I thought perhaps a curiosity."

SALVIA MARMORATA.—G. A., West Chester, Pa., writes:—"I send you a little box with flowers of the Salvia marmorata nana, it grows only to about fourteen inches high and is of very free flowering habit. It has bloomed for me the whole Winter; comes true from cuttings. I think it will prove one of our best bedding and market plants.

[This *marbled* variety of the Scarlet Sage, is not uncommon in greenhouses, and makes a very good variety. It is a sport from the white variety, which sometimes comes entirely scarlet, as well as marbled; the dwarf character may be new.—Ed. G. M.]

Beauty of Glazenwood.— Mr. Edwin Lonsdale, Thorps Lane, Germantown, says:—"With your permission, I would like to ask through the columns of the *Monthly*, if the (said-to-be-new) Japan Rose, Beauty of Glazenwood, has flowered in this country?

It will be remembered by those who have seen colored plates and descriptions of it that it is said to be 'a rose of golden yellow, striped and flaked with scarlet or vermilion.' What I am interested in is, whether it is really what is claimed for it, or is it all 'a fairy tale?' as reports are here from England to the effect that Fortune's Yellow Rose and the 'Beauty' are identical."

[The Royal Hort. Society's Committee says they are identical.—Ed. G. M.]

Glass for Horticultural Purposes.—S. O. Knapp, Jackson, Mich., writes:—"In reading the account of the late Convention of Window-glass Manufacturers, held at Pittsburg, it has occured to me that there should be some effort made by the leading horticulturists of the country to induce that Association to manufacture a suitable glass for horticultural purposes. You are aware that the great drawback to horticulture under glass, is the tendency to burn, from the use of defective or improper glass. And could this be obviated without materially enhancing the price of the same, I think the increase of its use would be very considerable. The necessity for such an article at the Kew Gardens, in England, a number of years since, led to a thorough investigation of the subject by scientific men, and by the aid of the solar spectrum in connection with chemical and hoticultural experiments, I think the desired end was attained, and by the use of a little oxide of copper in its manufacture, a glass has been produced preventing the permeation of a portion of that class of heat-rays so objectionable at the maximum point of calorific action. It would not be difficult at the present day to ascertain just what was needed, and if all did not wish to manufacture the article, they by a system of exchanges could each supply their own customers. Their first Vice-President, Mr. F. L. Bodine, I notice resides in your vicinity. I have only hinted at this subject, hoping to attract to it the attention of those capable of treating it more in detail."

The "Ohio Lady's Experience."—L., Cazenovia, New York, writes that she has derived much encouragement in her efforts at window gardening from the experience of our excellent Ohio contributor, as have no doubt many of our readers.

Hot Water Boilers.—One of our most intelligent Maryland contributors, says: "You submit to the readers of the *Monthly*, the question whether as much heat is obtained from a given weight of fuel, by hot water heating as by the flue. I have had considerable experience with hot water heating, fitting up, &c., and thought I would give the result of it, but find that no sort of justice can be done the subject as I think, except by small pamphlet with drawings, and not being apt at writing and worse at drawing, have concluded to leave it alone. I may, however, tell you of an instance in my experience in which I was easily deceived.

In addition to the glass-house heated, we had two immense warehouses heated by the saddle-back boilers. One of them started a leak, and the manufacturer of the apparatus suggested putting in a new one, with *tubes*, in the *place of fire bars*, to be filled with water, of course, and connected at each end with the boiler. I thought the idea a good one, and assented readily, thinking thereby to save fuel and also to get up heat more quickly—or, perhaps, more correctly, thought to economize the heat as given out by the fuel. It was a conclusion easily reached but proved erroneous. I know from repeated personal experiments, *it was of no advantage*. If there was any difference the old fire-bars had the best of it. The way I account for it is this, the fire-bars became red hot, and reflected the heat to the boiler, very little of it escaping from the ash-pit door. With the tubular water-bars, the heat at the bars was never so intense, and, except in continuous firing—which by the way was seldom needed—combustion was not as perfect. I am aware how difficult it is to persuade the casual observer of the truth of such things, but having satisfied myself by repeated careful experiments, I must give the result as I find it.

Mere *opinion* is a small affair in asserting fact. Having wrought many kinds of boilers, have found good points in most. A great deal depends on the common sense, care and conscientiousness of the fireman, as to economy, capability, &c., of boilers generally.

[The *cold* bars would no doubt deaden the fire, and just at a time when the most heat would be wanted.—Ed. G. M.]

FRUIT AND VEGETABLE GARDENING.

SEASONABLE HINTS.

Among the gains of the few past years is the definite knowledge that the knot on the plum and cherry is caused by a fungus. It is no longer feared. If cut out as soon as seen, it is easily kept down. Years before this was demonstrated, the *Gardener's Monthly* showed from various analogies that it could be from no other cause—and, in the same way we urge that the terrible fire-blight in the pear, and other "blights" in the pear and apple, the yellows in the peach, and similar troubles, can only be caused by fungoid attacks. For these disorders, washing the trees in Winter with linseed oil or white wash will no doubt be very serviceable. Most of these orchard pests are getting under control—the curculio being alone triumphant so far. Mr. Lawrence Kauffman believes the fumes of coal-tar will keep them away from the plum orchard. If this were some mere "paragraph" information it might not be worth much attention, but Mr. Kauffman is a man whose experience is worth listening to. It may be too much labor where there are but a few trees. If smoking once or twice in a season would do, it would be a good discovery, but many would go without plums than have to do this very often. Of course, in large orchards, it is another matter. The jarring practice is still often in use, and this must be continuous the whole season to be very effective.

For a few trees, the best plan perhaps is to cover them. Last season we saw some heavy crops of plums under trees that had been wrapped around with mosquito netting, thus fully protecting the fruit from curculios. If such gauze were steeped in tan-bark before using, it would probably last a great many years in good order for use. Trees might be trained *en espalier*, on purpose to be the more readily protected in this way. It is a nice plan in many respects, as should mildew or insects attack the fruit tree, or a shade or shelter be required for any purpose, the tree is the most perfect shape for operating on to the best advantage. This is the season to commence with young trees to put them in shape for this purpose.

Watch all young fruit trees against bearing too abundantly while young, or the first season after planting. There can be no objection to the ripening of one or two fruits on a tree the first season of setting out, in order to test the kind, or to administer to curiosity, if the tree be otherwise growing freely. If little growth is making, no fruit at all should be permitted. It is a better practice to disbud or take out soon after shooting, all shoots that are needless to the perfect shape of the tree, than to wait till Fall or Winter. The pruning knife need then only be used to shorten a branch into where several branches are desired to push, or to induce a more vigorous growth from the pruned parts. In the Gooseberry, Raspberry and Strawberry also, no more shoots should be suffered to grow than will be required to bear the next season.

Cabbage, Cauliflower, and Broccoli, are now set out for Fall crops, and Endive sown for Winter salad. Lettuce also for Summer and Fall use. This however, must be sown in very rich soil, and in a partially shaded situation, or it will go to seed. Peas, Beans, and other crops, should be sown every two weeks. They do much better than when a large crop is sown at one time, and then have too many on at one time to waste.

Melons, Cucumbers, Corn, Okras, Squash, Beans, Sweet Potatoes, Lima Beans, Peppers, Egg Plants, Tomatoes, and other tender vegetables that do not do well till the sun gets high, and the ground warm, should go into the soil without delay.

Bean poles should be set before the beans are planted; and near cities where they are comparatively high priced, their ends should be charred. This will make them last some years.

Keep weeds of all kinds down from the time they first show their seed leaves. It not only saves labor "in the end," but the frequent stirring of the soil vastly serves the crop. Sow a succession of vegetables every few weeks,—some-

times insects, sometimes frost, or occasionally other accidents will cut off a crop, and then there is some chance for its successor not wholly to disappoint.

COMMUNICATIONS.

THE STRAWBERRY LEAF-ROLLER.

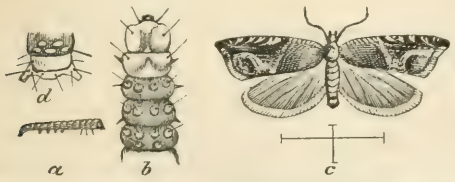
(*Anchylopera fragariæ.*)

BY C. V. RILEY, STATE ENTOMOLOGIST, ST. LOUIS, MO.

I have just received the following from Mr. J. R. Gaston, of Normal, Ill.:

"I send you by same mail with this a small box containing chrysalis and larva of a leaf-roller that was very destructive on our strawberry plants last season, and I find the larvæ bright and happy now, ready to commence business as soon as warm weather comes. Do you know of any remedy? If there is no practical way of heading them off, we will have to give up strawberry culture here until they leave. Would be glad to hear from you when you have leisure to do so. Very truly yours."

The worm sent is that named in the heading, and I send you herewith what I wrote about it nine years ago in my first Report. The fact of hibernation as larva is new and interesting, but does not affect the practical recommendations.



STRAWBERRY LEAF-ROLLER.—*a*, larva, nat. size; *b*, head and thoracic joints of same, *d*, anal joint; *c*, moth, enlarged.

The above figure represents an insect which devours the leaves of our strawberries. A more perfect picture of the moth is given enlarged at Plate 2, Figure 26, and of the natural size at Figure 27. It was first described in the January number of the *American Entomologist*, from which I take the following account of it.

For nearly two years, we have been acquainted with a little greenish leaf-roller, measuring about one-third of an inch (Fig. 80, *a*), which in certain parts of North Illinois and Indiana has been ruining the strawberry fields in a most wholesale manner; and which also occurs in Canada, judging from an account in the *Canada Farmer* of August 1, 1867. It crumples and folds the leaves, feeding on their pulpy substance, and causing them to appear dry and seared, and most usually lines the inside of the fold with silk. There are two broods of this leaf-roller during the year, and the worms of the first brood, which appear during the month of June, change to the pupa state within the rolled-up leaf, and become minute reddish-brown moths (Fig. 80, *c*), during the fore part of July. After pairing in the usual manner, the females deposit their eggs on the plants, from which eggs, in due time, hatches a second brood of worms. These last come to their growth towards the end of September, and changing to pupæ, pass the Winter in that state.

We first heard of this leaf-roller in the Summer of 1866, when it did considerable damage at Valparaiso, Indiana, and we were informed by Mr. N. R. Strong, of that place, that in 1867 they continued their depredations with him, and destroyed ten acres so completely as not to leave plants enough to set half an acre, and that in consequence of this little pest, in conjunction with the White-grub, he has had to abandon strawberry culture.

When we met the *ad interim* committee of the Illinois State Horticultural Society at Lacon, in the beginning of July, 1868, we received from these gentlemen a quantity of infested strawberry leaves, from which in the course of the next two or three weeks we bred many of the moths. These specimens had been collected at Mr. Bubaugh's place, near Princeton, Illinois, where they were said to be very abundant, and to have completely destroyed one strawberry patch containing several acres.

Subsequently, we received another lot of specimens from Mr. W. E. Lukens, of Sterling, Whiteside County, Illinois, with the following remarks upon this very important subject:

"Where these insects are thick I would never think of raising strawberries. It is strange that I have not noticed any of their work upon this side the river; while on the south side for a mile up and down they are ruining the crops of berries. Removing the plants does not take with them the moth nor the eggs, so far as has been observed. A gentleman by the name of Kimball, at Prophetstown, had his crop a few years ago entirely destroyed by this insect, though it amounted in all to two or three acres. I hear of a great many men in other places having their crops burnt up with the sun, and have no doubt that it was this leaf-roller, and not the

sun, that was the real author of the damage. As for myself, I have on this account entirely quit the business of growing strawberries."

The only modes of fighting this new and very destructive foe of the strawberry—which, however, seems to be confined to northerly regions—are, first, to plough up either in the Spring or in the Fall, such patches as are badly infested by it, by which means the pupæ will probably be buried and destroyed; and second, not to procure any plants from an infested region, so as to run the risk of introducing the plague upon your own farm.

We annex brief descriptions of this insect, both in the perfect and larval states. We are indebted to the distinguished English Microlepidopterist, H. T. Stainton, for the generic determination of the species, and for the further remark that "it is closely allied to the European *Anchylopera comptana* (Manual, Vol. II, p. 225), which feeds on various Rosaceæ, such as *Poterium sanguisorba*, *Potentilla verna*, and *Dyras octopetala*." [I have since ascertained that it is identical with *comptana*, and therefore probably an importation.]

ANCHYLOPERA FRAGARIÆ, new species—head and thorax reddish-brown. Palpi and legs paler. Antennæ dusky. Tarsal joints tipped with dusky. Front wings reddish-brown, streaked and spotted with black and white, as in the figure. Hind wings and abdomen dusky. Alar expanse, 0.40–0.45 inch. Described from nine specimens.

The larva measures, when full grown, 0.35 of an inch. Largest on the first segment, tapering thence very slightly to the last. Color varying from very light yellowish-brown to dark olive-green or brown. Body soft, somewhat translucent, without polish; the piliferous spots quite large, shining, always light in color, contrasting strongly in the dark specimens with the ground color. Hairs, especially lateral ones, quite stout and stiff. Spots arranged in the normal form, segments two and three having none, however, on their posterior half, as have the rest (see Fig. 80, *b*). Head horizontal, of a shining fulvous color, with a more or less distinct dark eye-spot and tawny upper lip. Cervical shield of the same shiny appearance. Anal segment with two black spots (see Fig. 80, *d*), at posterior edge, being confluent, and forming an entire black edge in some specimens. Legs prolegs, and venter of the same color as the body above.

CARBOLIC ACID FOR INSECTS.

BY T. T. SOUTHWICK, ROCHESTER, N. Y.

The time has almost come again when "the little busy bugs" will open up their Summer campaign, and dispute with the "lords of creation" for possession of the "fruits of the earth." Allow me thus early to call attention to an article, the merits of which everybody knows, but which many dare not use—I refer to carbolic acid. Prepared as indicated, it cannot, I think, hurt the most delicate house plants, and it is sure to kill insect life.

My plan of preparing is as follows:—I obtain crude carbolic acid; I use it in this form because it is stronger and better for the purpose, and costs but very little (about 25 cts. per gallon, I think). I pour a quantity of this dark crude acid into a quantity of good strong domestic soft soap; stir well together, and allow to stand for a few hours. I then test the compound by mixing a little of it with soft water. If too much acid has been added, oily particles of carbolic acid will be observed floating on the surface. This shows that more acid has been put in than the soap will incorporate or "cut," and more soap should be added to balance the excess of acid. No more definite rule can be given, as so much depends on the strength of the soap. Two or three tablespoons full of the acid to a quart of soap may be first tried. I prefer to make as strong with acid as the soap will perfectly cut. A very little practice will enable any one to compound it correctly. The refined acid may be used when the crude is not at hand. When prepared as above, make a moderately strong suds, and apply with syringe or sponge. In using on very delicate plants, should any fear be felt for the plants, they can be rinsed off after a few minutes. My first and eminently successful use of this compound was some years since, on a block of young cherry trees, some fifty thousand in number. The black aphis "came down like the wolf on the fold," only "they came not as single spies, but in whole battalions." It soon became an interesting question as to who was the proprietor of this particular block of trees—myself or the "bug Ethiopian." A disinterested observer of judicial turn of mind, judging from the general appearance of things and the very "at home" air assumed by the bugs, would have said they had the best case. He would, at least, have been compelled to admit they had "nine points of the law" (possession)

in their favor. I never saw the like before. The trees were alive with aphis. The only scarce things on the trees were leaves, there being hardly enough to afford "standing room" for all the dusky guests. However, not being a convert to the doctrine of "squatter sovereignty," I declared war, and failing to decrease the numbers by ordinary means, I compounded soft soap and carbolic acid, and with a single application exterminated the enemy.

[It has always been a matter of surprise with us that those who suffer from the ravages of insects do not make more use of carbolic acid. Though so destructive to the lower forms of insect and plant life, it is innocuous as against the higher.—Ed. G. M.]

KEEPING TOMATOES.

BY W. F. BASSETT, HAMMONTON, N. J.

The best success I ever had in keeping tomatoes was by cutting the vines off at the surface of the ground, or pulling up by the roots and trimming off all the foliage and hanging them up in a light cellar. More of them ripened than in any other way, and the quality was better. This was in Massachusetts, and my cellar was not near so dry as here. I see no reason, however, why they should not do equally well here, but we have had such an abundance and variety of fruit that we care less for tomatoes.

THE MAIN GRAPE.

BY J. M. H., DOVER, NEW HAMPSHIRE.

I notice by the *Monthly* that this grape is "being pushed again." I have been acquainted with it from its first introduction to the present time; have seen it at fairs, exhibited by Mr. Main himself; have fruited it on the same trellis with the Concord; have watched the growth of the vine from the starting of the leaves in Spring until it ripened its purple bunches in Autumn; have exhibited it side by side with Concord, and I have tasted and tested it with fruit-growers, and fruit committees, and the general opinion was—that it was a Concord—"only this and nothing more." I once attended a fair and exhibited a plate of Main grapes, and beside it a plate of Concords. I had some conversation with a gentleman interested in the sale and propagation of the Main grape, in relation to the identity of the two. I claimed that there was no perceptible difference, while the only argument he could bring to bear to prove a difference was, that the Main had smaller seeds. Such a slight claim as that would indeed puzzle the Patent-Office clerk who attempted to distinguish between Mr. Bull's and Mr. Main's "patent," should they attempt to "throw around" their grapes "horticultural protection."

[The exposure of this matter was long ago made by one of the correspondents of the *Gardener's Monthly*. Only that so many new readers have been added of late years, it would be unnecessary to say anything more.—Ed. G. M.]

PEAR TREE BLIGHT.

BY W. FOSTER, LOUISIANA, MO.

Reading with much interest the communication of Mr. M. B. Bateham, in the *Monthly* for March, and admitting fungi to be present whenever blight appears, it would seem that a *prima facie* case is made out, viz.:—that fungi are the *cause* of this deadly disease. The expression of Mr. Meehan, made before the United States Pomological Society, that "fire-blight is of fungoid origin," is certainly high authority, but it leaves the pear-grower to ask—what causes the plant growth called fungus? Dr. Salisbury strikes the key note when he says, that "the spores of the blight fungus are in the sap of the tree, and under favorable influence, start into growth." Now, are these sporidic cells or germs found in healthy sap? The microscope answers, with an unqualified—no! It is admitted that two opposing forces exist in all living things, chemical and vital. Whenever the chemical force obtains the mastery over the vital, the plant or animal dies, and each has its mode of dying. The circulating fluid determines the health or disease of plants, as well as animals. The food furnished the plant determines the character of its circulation, as well as its appetite. That the pear tree has an appetite which the spongioles are extremely sensitive to, is no longer matter of speculation, but is as fixed a fact as any other in horticulture, *e. g.*, remove the earth under a healthly pear tree in bearing till fibrous roots are reached; fill in a little moist earth to protect them; then pour in a solution of sulphate of copper, and fill up with earth. Ten days thereafter test for copper in the sap, and none will be found. If the tree has had its true appetite previously destroyed by

starvation, the spongioles will absorb almost any foreign matter presented to them in solution. Absolute experiments have shown this. Again, try the experiment with a solution of common salt, covering the hole with a sheet of tin tightly. Twenty-four hours thereafter, suddenly remove the cover, and the distinct smell of chlorine will be found. This shows that the spongioles not only have power to select the earthy compounds the tree and fruit require, but by their "presence action" absolutely decompose compounds, and recompose them with unerring certainty, so long as they are in a state of health.

All these experiments upon the fibrous roots are to be made in the night by the aid of artificial light, as they do not bear sunlight or dry air without injury. Apply a solution of common salt to a non-bearing pear tree, and it will not be affected by the roots, because there is no soda either in the wood, bark or leaf. The fruit, however, contains about 8½ per cent. of soda in its ash. The writer is of opinion that fungus is not the *cause* of blight, but one of its effects. The germ of fungi not being found in healthy sap, it would not be unreasonable to conclude that the vital fluid itself is in a partial state of decomposition before the sporidia can exist. And then pear trees that have been supplied with the plant food the tree requires, remain sound, while those near by, left to exhaust the soil of necessary earthy matter, exhibit fungoid blight. It has been a great misfortune to those actively engaged in growing the pear, that so many theories of the diseases incident to the tree have been advanced, and so few absolute experiments made to substantiate them. The pear tree and fruit contain eight compounds, which are received through the roots. Now, suppose one or more of these substances are not in the soil, is it reasonable to suppose that the circulation of the tree can long remain healthy? The cambium is but wood and fruit in solution, and if it has not all the elements of wood and fruit, neither can be true wood and fruit of its kind. Earnest men have often supposed they had placed within reach of the roots all these substances, and still their trees blighted. They have planted metallic iron under the tree, thinking to supply the soluble phosphate of this metal found in the ash of the fruit. As well might the physician administer a dose of lath nails to his patient, with a view of enriching the blood. They have dosed the tree with guano and all sorts of famous fertilizers, but it has starved, nevertheless. Its appetite has become morbid, and disintegration has followed.

It is not the aim of this communication to give the practice of the writer upon his own pear trees, several thousand of which are in bearing, and do not blight. It would require too much space. It is enough to say that pears can be grown with great success in any ordinary, well-drained soil, between the 34th° and 42d° of N. latitude, from the Atlantic to the Pacific, and that the materials necessary to the successful fruiting of the tree merely cost the hauling, except a little common salt, twenty-five cents worth of which will last a bearing tree for eight or ten years, though a whole barrel has been emptied under a single healthy bearing tree without injury.

[We know of no experiments which show that the spores of the fungus which causes the fire-blight exist in the sap of the tree, as drawn up through the roots.—Ed. G. M.]

EDITORIAL NOTES.

A Good Dwarf Celery.—We think this is still to be desired. We have some fair varieties, but they are often disposed to be branchy, and to have more leaves and stalks.

Monstrous Asparagus.—Under this caption we read the following in a German paper: "Take the strongest, just as they show above the ground, and put dark green bottles over them. They must be put vertically, not be more than half an inch in the ground, and therefore must be supported by sticks. Deprived of sun and air, the asparagus now quickly grows to the top of the bottle, and unable to grow higher, grows now along the walls of the bottle until the whole bottle is filled by it, and gets lifted from the ground. Now is the time to cut your asparagus and to break the bottle." Asparagus has thus been grown, weighing twelve ounces, of delightful flavor and very tender. May we add to this German precept the German proverb "Wer's glaubt zahlt einen thaler," "Whoever believes it, pays one dollar;" or translated into American, "You pays you money, etc., etc."

The Mother Apple.—There were few apples of more beauty and average merit on exhibition at the Centennial than the Mother Apple, but we do not find it in many collections.

It it a native of Boston, Mass., and is there a late Fall apple. After all it is the late season, good keeping Winter apples that are the most profitable.

The Alexander Peach.—As many persons are anxious to know how this early peach is doing in various sections, we append the following, taken from letters handed to us:

Mr. Chas. Downing says: "The Amsden's June, Honeywell, and Alexander were all worked on the same tree, and though we could see by the leaves they are distinct kinds, ripened together, and if the fruits were all placed on a dish, no one could select one from the other. Early Beatrice is too small. These are the best early peaches of fair size."

Dr. Watt, of Niagara, Ontario, reports that in that high northern region the Alexander ripened on the 8th of August.

W. P. Robinson, of Atlanta, Georgia, went to Palmetto, 50 miles, to see it in fruit, and does not regret the journey.

Peach Culture in the North.—A correspondent of the *Country Gentleman* has been giving some interesting information about fruit culture along the Niagara River, and thus speaks of the Peach: "Most of the peach orchards in this region are young and in full vigor. They bore good crops for the past five years in succession. This year, from some unknown cause, there are very few. It is estimated that the peach orchards of the township of Niagara contain 40,000 trees, and it is likely to become noted as one of the best peach regions of the State. The best peach region appears to be confined to a breadth of a mile or two along the river. Farther inland this crop has not been so successful, until we reach the neighborhood of Lockport. A carriage drive from the Falls to Lewiston showed an improvement in the peach orchards as we thus neared Lake Ontario.

QUERIES.

The Fruit Crops in Ohio.—J. P., Dayton, Ohio, writes:—"The Winter has been very destructive in this locality, killing peaches, and very materially injuring blossom-buds of Pears."

Black Fungus in a Grapery.—T. E., Bridgeton, N. J., writes:—"I wish to ask for information in regard to a black fungus or mildew that attacked the leaves in a cold grapery. Last Summer, after the grapes were a good size, a black fungus appeared on the leaves, sash and some of the grapes. The sash was painted white, and the fungus made them in some places completely black. You will oblige me very much by letting me know what is the cause of it, and what will prevent or remedy it."

[No one knows what are the peculiar circumstances which favor the growth of this fungus, but if the stems of the vines are painted with sulphur and soot before the leaves come, the fungus never appears. It is also good against other fungi, and destroys the eggs of many insects.—Ed. G. M.]

The Blenheim Pippin Apple.—S. M., Painesville, Lake Co., O., writes:—"I feel quite interested in the Blenheim Pippin, described in the January number, but do not know where to find it; I do not see it advertised in any catalogue. A brief note might direct others who feel as I do about it."

[The Blenheim Pippin is but little grown in this part of the world. Any one who can send us information that will help our correspondent will receive our thanks.—Ed. G. M.]

The Pear Blight.—A Watertown, N. Y., correspondent asks, "If fungi are the cause of pear blight, why did they not act as potently when the country was first settled as now? or must we say it is a new creation—and who will believe that?" It must be remembered that a fungus is a plant, and must have seed, or as we say spores, to start it, quite as much as the Canada thistle. The Canada thistle was not in Canada when Canada was first settled. But we are not on that account forced to believe that the thistle in Canada is a new creation. We do not know where the pear fungus is, when "at home," but it is not at all likely that it is a new creation.

The True Wilson's Albany Seedling Strawberry.—R. P. H., Erie, Pa., says, that "For several years he had the Albany Seedling true on his place, but it does not bear any more." This is not unusual experience. Sometimes all the pistils abort, and then there is no fruit—why, we do not know.

Inarching Grapevines.—A. C. L., Madison, Ind., writes:—"For the past fifteen years I have been a careful reader of the '*Horticulturist*,' and never asked a question. I now ask for some information, that I have in vain sought for else-

where. Last Spring I built a new grapery, twenty vines (each two years old) were planted. Alongside of each vine is planted a one-year-old, of a different variety, intending to inarch the two this Summer, and so give the main vines *two* roots instead of one. This will give rapid growth at any rate. The main vines have been cut down to four feet; but the one-year-olds to the ground. The one-year-olds will come out with new wood, but the two-year-olds will have the wood of last year. The question is, can the two be inarched under the circumstances? The process of this inarching has one great advantage—you can get clear of new and, as the case may be, a worthless variety, simply by the aid of a knife and a gouge, without replanting. Whoever trusts to your 'fowl' remedy against the ravages of curculio, in the plum orchard, will meet with disappointment."

[Our correspondent is much to blame that he has not asked a question before. It is not objectionable to us, indeed it is a favor to have the questions, when they are of a character to give information to many, as well as to the one. The young wood will inarch readily with the older wood, but it may take longer to unite.—Ed. G. M.]

Stirring the Surface Soil of Orchards.—E., Vineland, N. J., says:—"Some years ago, you delivered a lecture before our Vineland Agricultural Society on your 'New Method of Orchard (&c.) Culture,' which created quite an agitation here. In the light of recent studies of *mulch vs. drouth*, and various other matters, I cannot rest without taking the liberty of requesting you to put me in a way to get a full view—general and special, theoretical and practical—of your system. I should like to study *all the literature extant* of the system, in books, periodicals, &c., 'from the earliest period to the present time.' Will you kindly assist me all you can in this matter? I want to know *all about it*—its rise, its growth, and its *success*; and particularly whether it has been applied to general farm culture, as well as to orchards and vineyards. I had not the pleasure of listening to you while lecturing here, and only saw partial reports, and, I fear, one-sided critiques of your lecture in our local papers, and occasionally heard *mere common-sense* discussions of your system at our Farmers' Club, &c. And besides, my mind was not then ripe for the full and exhaustive consideration of your new departure in agriculture. I am fully ready to study it now, and experiment on it in a small way.

"Please give me a list of its bibliography. Among other things where can I see a copy of the *revolutionary* lecture which you delivered *here*."

[The Editor of the *Gardener's Monthly* has no time to *write* lectures, hence, when he gives addresses before associations or elsewhere, they are always extemporized for the occasion, and as the reporters, therefore, have not the help of notes even to make up reports from, people who read the papers do not always get the right ideas of the discourse. This is true of the Vineland lecture given there many years ago.

As regards the matter in question, there is no particular *system* about it, for the practice must vary with the occasion. What the Editor has taught in this matter he lays no claim to, the practice was in existence long before he was born—all he has done is to make the practice popular by showing its good points.

In the olden times, when people spoke of "cultivating" an orchard, they meant treating it according to those rules of garden art, which resulted in the healthiest trees and full crops of the best fruits. But in our day the hoe-harrow was invented, and the makers called them "cultivators," and thus when any one reads that our fathers well-cultivated their orchards, they imagine it means that they kept these machines running up and down among the trees all Summer. And so firmly was this erroneous notion imbedded in people's minds, that the Editor of the *Monthly*, was charged with advocating *neglected* "culture" because he contended that this working of the soil was not "good cultivation." Most of the misconception of his views arose from this misunderstanding, and even now, those who fail with grass culture, are generally those who let the grass starve the trees.

As a general rule a good grass crop is a good paying crop in any part of the country. It will grow under trees better than cabbage, potatoes, or any other farm crop. When people grow potatoes, wheat, or any grain or vegetables under orchard trees, they have to manure them, and we ask manure for the grass as well; then you will have a grass crop that will pay to cut for hay, and in the most parts of this country hay always pays for cutting. There is no crop that you can grow that takes less labor than hay, and this is important in orchard culture. Then there is this additional advantage to the trees—

the feeding roots are near the surface, and when this is the case the wood-growth is always healthy, ripening thoroughly. Even those who "scarify" the orchard surface, always contend that they must leave off early in Summer, or the wood "does not ripen well," and injury follows. Then you can never injure such trees by over manuring; you may make a manure pile around a tree whose roots are on the surface, and it will rather rejoice than pout at your treatment. The trees do not suffer from heated soil in Summer, as under grass the earth temperature seldom rises to more than 85° in the hottest weather.

Now you see these reasons will vary in different places. In sandy soils the feeding roots run deeper, and hence "cultivating," as our friends of the hoe-harrow call it, is not so injurious. In the North the hottest Summer sun would not raise the earth temperature over 85°, and there would not be the same need of screen from the sun, but then grass keeps the frost from entering the ground deeply, and in the North that will be a blessing. Then some people settle in poor, very poor places, where manure is not to be had for love nor money, and then it is far better to keep down grass with all its advantages, than to have grass and trees both starving together.

So you see there is no "grass system." We cannot tell anybody whether he ought to have grass in his orchard or clean culture, unless we saw it. All we say is that in regular farming regions, where people have the ordinary farming conveniences, and where the ordinary farming routine can cover the orchard as well as any other part of the farm, more money can be made from a *well-managed* orchard in grass, than from an orchard managed in any other way. It is the cheapest and best of all orchard practices.—Ed. G. M.]

NATURAL HISTORY AND SCIENCE.

ON SELF-FERTILIZATION AND CROSS-FERTILIZATION OF FLOWERS.

BY THOMAS MEEHAN, GERMANTOWN, PHILA.

(Continued from page 118.)

The chief arguments for the necessity for insect fertilization are drawn from structure, and not from fact. For instance, we are told that Iris, Campanula, Dandelion, Ox-eye Daisy, the Garden Pea, Lobelia, Clover, and many others, are so arranged that they cannot fertilize themselves without insect aid. I have enclosed flowers of all these named, in fine gauze bags, and they produced seeds just as well as those exposed. I was somewhat surprised at the two first, Iris Virginica and Campanula, producing seeds under these circumstances, as they are common illustrations of the necessity of insect fertilization. In short, in all the cases I have tested in this way, seeds were produced as well under the gauze as without, except in one instance—Baptisia australis. In most Papilionaceous plants that I examined, in spite of the suggestions of my friends, I thought the arrangements favored self-fertilization; not only by the position of the organs, but from the fact that the moment anything touched the flower so as to liberate the pistil or stamens, a cloud of pollen floated all around like a little cloud; a dispersion of pollen, which, by the way, in view of prevailing theories, the class of flowers with "fragrance, color, or honeyed secretions," ought not to make. Genista scoparia will give an excellent illustration of this. But in Baptisia I did not notice this little cloud; and it did seem in the actual act of collecting honey, the humble bee's pollen covered abdomen pressed itself closely down on the stigma. I covered a spike of a dozen unopened flowers with a gauze bag, and had only one seed vessel, though in the exposed spikes nearly every one perfected. This fact may go for what it is worth; for be it remembered, I am far from denying that flowers are sometimes fertilized by the aid of insects. It is the extent of these facts, and the theories to be deduced from them, that I have to deal. Independently of trials by gauze bags I have experimented with single flowers of some species. I take plants of which there are no others in the vicinity, and pick off all but a solitary flower, not permitting another to open until the other has faded, and if they seed, it must be only by own pollen. I was led to try this from noting a few first flowers of Œno-

thera serrata, which open about noon and die in a few hours, seed when I was almost sure no insects had visited them. In watching for this purpose Talinum teretifolium, I found that it opened always a few minutes before 1 P. M., began closing at three, and by half-past three had wholly closed. No insect visited them in that time, but every flower seeded, as did subsequent experiments with single flowers. An ally, the common Purslane, remains expanded only from 8 to 9 A. M., and is, I think, an undoubted self-fertilizer, and yet on what theory of the advantages of cross-fertilization could a plant make better headway through the world?

It is of course well-known that some flowers are opening and closing at almost all hours of the day and night, many remaining open but a very short time. Can this varying and limited time have anything to do with insect fertilization? Would not fertilization by insect aid be more certain if at least a whole day were given for the chance? In my district the little florets of the Chicory are all fertilized before 8 o'clock, and by nine have faded away. This species is an excellent one for noting how self-fertilization is effected in composite plants, as the pistils are blue and the pure white pollen is easily seen. Soon after daylight, the corolla lengthens. After a little while it rests, but the stamens and pistil go on. Then the stamens cease to grow; but the pistil continues to lengthen, carrying an immense quantity of pollen with it. Here is the difficulty which those who differ from me experience. The pistil has to cleave, and only on the interior of the clefts seems to be the stigmatic surface; the pollen then *must*—it is said, —rest of necessity only on the exterior, where it cannot operate. But if any one will get up early and spend a couple of hours in watching the development of the flower, driving away an occasional sand wasp that would like to gather the pollen, he will find there is not a cloven pistil that has not some pollen on the interior stigmatic surfaces. Of what avail are "must be's" against positive facts like these? But if he watch closely he will see that this pollen falls into the chasm made by the opening stigmas. In the language of my friends, it is a "beautiful arrangement" for ensuring self-fertilization. If further, we allow the sand wasps to work at pollen gathering, we find that while clearing the pistils of pollen, they push quantities into the clefts, and are, therefore, agents in self-fertilization, instead of the reverse. I have observed the same in Dandelion and the Ox-eye Daisy, Chrysanthemum leucanthemum, as well as I am sure that thousands flower and perfect seeds that no insect visits. There seems to be something yet inexplicable as to how some flowers become fertilized. In Cirsium (C. Pitcheri) and many others of that section, what in others is a bifid stigma, is nearly entire, the stigmatic surfaces being almost, or perhaps in some cases wholly united together. Cirsium Pitcheri has very long pistils. The honey bee seems very fond of the flowers. It works between the pistils. I have never detected a grain of pollen on the almost entire apex, though the sides are covered as in other composites. But it seeds abundantly.

I think the peculiar closings of flowers are as much designs for effecting self-fertilization, as for anything else. It does effect it in Ranunculus, Claytonia, and most likely in the Iris enclosed in the gauze bag, and perhaps in many plants with flowers that close and twist up in fading. In Ranunculus, on the first day's opening of the flower, the outer of the numerous rows of pistils throw their pollen on the glazed petals. These close at night, and the pollen is dropped in over the hollow in which are the mass of perfect pistils. I refer to R. bulbosus. In Claytonia (C. Virginica) the same thing occurs with the early flowers, so far as drawing the stamens up to the pistils is concerned. In the later flowers the anthers recurve more, and in the closing at night are drawn under the pistils, and hence we find seed here only from the earliest flowers. These illustrations are not uncommon. Even in wind fertilizing flowers the times of opening and closing of certain parts of the flowers, may be worth a study. I find Luzula campestris—the wood form—bursts its anthers about 9 o'clock A. M. By ten, the pollen is committed to the atmosphere. As its own pistil has dried up by this time, having expanded two days before, it cannot fertilize its own pistil. There is no evidence that it would not be just as well if it could. This precision and uniformity as to time, shows that there are other considerations involved in the acts connected with fertilization, besides those usually suspected.

(To be continued.)

EDITORIAL NOTES.

NYMPHÆA LUTEA.—The yellow water lily that figured in Audubon, has been re-discovered in Florida, by Mrs. Mary Treat.

Hollyberries.—In reference to the suggestion made to us by a correspondent lately in regard to Mr. Darwin's views on the relation of insects to the scarcity of Hollyberries, it is but right to note that Mr. Darwin himself, has since written a letter to say, that on further reflection, he thinks he was wrong.

Seeding of the Horse Radish.—If any one finds seed on the Horse Radish, some specimens would be thankfully received by the Editor.

Poisoning by Ampelopsis Virginica.—The following paragraph is going the rounds of the papers, and we give it here in order to express an opinion that it is a case of mistaken identity. In our own country the Rhus radicans—poison vine—is often taken for the Ampelopsis—Virginia creeper,—and it may be so abroad. The Ampelopsis belongs to the grape vine family, and closely allied to the grape, and it is scarcely probable it should be poisonous :—

"The details of two cases of poisoning by the well known Virginian creeper or American ivy (Ampelopsis hederacea) have been communicated to the medical papers by Mr. Bernays, of Chatham, England. The sufferers were two children, aged respectively two and a half and five years, who had chewed some leaves of the plant, swallowing only the juice. They were quickly seized with violent vomiting and purging, with considerable tenesmus, then collapse, sweating, and faint pulse, followed by deep sleep for two hours, from which they were aroused by a return of the vomiting and purging. Milk, with some rum mixed in it, was freely administered, under which treatment the children soon recovered; but four hours after the commencement of the attack there was considerable dilation of the pupil."

Double-headed Calla.—Mr. Flitton sends us a very pretty Calla, with two spathes. We have occasionally seen these double-headed forms, but never so perfect as this. The first or lowest "flower" is very fine, 6 inches long by 5 wide. Then instead of the ordinary spadix (the orange-colored column) there is a stem of two inches and then a perfect, but smaller flower.

Such specimens are very interesting to the students of morphology, as illustrating by example what is usually taught by theory. The solid stem or flower stalk of a Calla, is formed of a mass of leaves rolled up, and united together into a round stalk, and the usual white spathe is merely the leaf blade very much reduced. The spadix is formed of other leaf blades, but so completely united together and transformed that no mere observer would suspect it. In the case before us, the apex of a leaf got free from the consolidating power before the proper time, as the two inches of flower stalk above shows; and the same power that thus favored the leafy character of the plant in this way enabled it to form another spathe. How near the lower spathe came to being a perfect leaf blade is shown by the green tip.

Since the above was written we have a photograph of one, exactly the same, from Mr. Valentine Burgeoin, Kingston, N. Y.

Gilia Parryæ.—A correspondent of the *Rural Press*, taking this plant as a text, is exasperated that botanists should name plants after individuals. He says:—

"The point I wish to set forth is this: That the interest of the people, and full as much of science, would be better served by bestowing upon new plants (and upon many old ones), names derived from some peculiarity in form, color or habit of the plant. Take, for instance, the Didiscus cœrulea; one who has had any acquaintance with Latin at once imagines a blue flower."

But why should *cœrulea* mean blue *flower*, any more than Virgilia lutea which means yellow wood. But supposing a botanist should follow this gentleman's advice, and give the name of cœrulea to the first blue flower of a genus that he finds, what is he to do when he finds more blue species? People often complain of botanists and botanical language, as if the object of a botanist were to make the study as difficult as possible, when it is just the reverse. Only for their care it would be impossible to study the science. People who complain about these things know nothing about the subject. If their correspondence were in the shape of inquiries, instead of complaints, there would be more reason in it. In this very instance, the correspondent would be surprised to learn, that a specific name which means nothing, is less likely to mislead than one which means something; and it is no doubt the perception of this that leads to the growing practice of naming plants after persons associated with their discovery. Such names have the advantage of historic value at least.—[Ed. G. M.]

Echinocactus Simpsoni.—Magazine work is not like book-making, and in the necessary haste involved, mistakes are more likely to occur; and when they do occur, are more excusable. We

offer this apology in advance for the *London Garden*, which has recently given amongst its colored plates a sort of rock-loving plant with pentamerous floral parts, and gives it as Echinocactus Simpsoni! It is seldom that we notice the errors of our contemporaries, having enough to do to look after our own, but as this one will cause much confusion, we hope our good neighbor will pardon us for noting it.

QUERIES.

Eucalyptus in Philadelphia.—Letter from Mr. Price.—Only this morning your short article, "Eucalyptus in our climate," caught my eye. It strikes me as in a slight degree uncharitable towards the American Philosophical Society and Mr. Davenport. The latter in speaking of the Eucalyptus of Australia that might grow here, was not speaking of the tropical kind that has been transplanted into South California and the North of Africa, but of a mountain Eucalyptus that grows in South Australia, outside the tropics, and several thousand feet in height. Mr. Davenport was the very intelligent Commissioner at the Centennial from South Australia, and only referred to the Eucalyptus that grew on "Australian Alps and Pyrenees," as worthy of trial in our climate. The Society expressed no opinion on the question as to whether there can be found a species that will grow here. If the Society should commit an error in botany it seems to me that the blame should fall upon you and several other botanists who are members, but seldom attend its meetings, rather than upon the geologists, zoologists, chemists, doctors and lawyers, &c., who do attend. Of this I assure you, that if Mr. Davenport shall send to me, as he promised to do, the Mountain Eucalyptus seeds, I will give them a trial in the Park. It will cost the city nothing; and if they fail, you are welcome to say, "I told you so," but if they succeed, I expect you to be the first to commend the attempt.

Mummy Wheat.—A correspondent sends us a specimen which proves to be a species of Sorghum, which he raised from seed "undoubtedly" obtained from an "Egyptian mummy," and kindly offers to give friends who send a stamp, some of the precious seeds. Under the names of Egyptian corn, Dourra corn, and Upland Rice, bushels and bushels of it already exist in this country. It is sometimes grown as chicken feed, and is of little value for anything else. We think our readers may save their stamps. We are sorry to be obliged to say to our correspondent that though to him "undoubted," if he will examine closer he will find he has been cheated by an Egyptian. These people are at least no better than Christians, and we know even these will impose on any traveler who has a tendency to the marvelous. No grain has been proved to keep vital anywhere near two thousand years—nor any vegetable matter. It is surprising that people can be so easily deceived. The good Lord Lindsay tells us that, in the course of his wanderings amid the pyramids of Egypt, he stumbled on a mummy, proved, by its hieroglyphics, to be at least two thousand years of age. On examining the mummy after it was unwrapped, he found in one of its closed hands a bulb, which, when planted in a suitable situation, grew and bloomed a beautiful Dahlia. The Turk who unwrapt that mummy must have felt that he had an extra specimen in the case of his lordship; and evidently made an extra effort to please.

Rotting of Seeds in Spring.—S. S. S., Rochester, writes:—Knowing you to be one of those who see "sermons in stones" and "good in everything" (save the U. S. postal laws), I send you an Apple seed of peculiar formation — think it may interest you in some way. In eating a Swaar just now I found this double seed. I think I never saw seeds grown together before. And I seldom eat fruit of pear or apple without examining the seeds in an idle sort of way. I could almost tell the sort by the seed, so distinct are the seeds of different varieties.

By-the-way, speaking of seeds, will you in a note in the *Monthly* tell your readers why it is that if they plant the Squash, Cucumber or Mellon seed a day too early in the Spring, while the ground is too cold and wet, the seed will rot; and if this same seed becomes accidentally covered in the Fall by some earth—as often happens when a neglected Squash is buried in the Fall—this seed comes up promptly in the Spring. How does it come that a little lack of warmth in Spring will rot the seed; and yet it will lay in the water, frost, &c., for months, and grow. There must be some principle governing; what is it? Is the vitality of seed weakened by drying? Shed the "light of knowledge."

[The double seed is interesting, as is the inquiry about the rotting of seeds. We know that Pumpkin and Squash will remain out in the ground and grow in Spring. We have not seen cases of Melons and Cucumbers, but have no doubt that they will; and yet, as S. says, they rot easily in the ground if planted in Spring before their time. Guessing at the cause of this difference would do little good. It is worthy of a patient investigation. Ed. G. M.]

LITERATURE, TRAVELS & PERSONAL NOTES.

COMMUNICATIONS.

GARDENING GOSSIP OF THE OLDEN TIME.

BY A. H. WILSON.

(Concluded from page 121.)

To turn, however, from these establishments where we have perhaps lingered too long. There were in that day many men of mark outside, who were more or less connected with them, and intimately with the profession. John Claudius Loudon having with his characteristic skill and unwearied industry compiled his bulky Encyclopædias of Gardening, Agriculture, Plants, and Cottage, Farm, and Villa Architecture, was busily engaged on his last great work, the Encyclopædia of Trees and Shrubs (Arboretum et Fruticetum Britannicum). Having, when a young man, been seriously injured by machinery he labored under great physical disadvantages, but was ably assisted by Messrs. Rauch, Masters, (now Dr. Masters, the well-known savant,) and others; but especially by his talented and devoted wife, herself an authoress on her own account, of several novels and gardening books, with which lady amateurs, in particular are familiar, as well as editress of some of her late husband's works. All who are acquainted with Loudon's writings—and what professional son of Adam is not?—will admit that without absolute prolixity, he is most prolific in ideas and profuse in illustrations; his subject grows upon him and he treats it in every possible aspect. The story goes that his publishers, Longman & Co., wishing to have an abridgement of "Abercrombie's Gardener's Manual"—a book which, (if I rightly remember the title and price,) was sold at about $2 or $2.50—placed it in Loudon's hands for that purpose. In an incredibly short time he produced the sheets of the Encyclopædia of Gardening, containing at least ten times the amount of matter, he was commissioned to *abridge*. Longman, of course, rejected them as an abridgement but Loudon found the means to publish the book, and as it was selling freely at $12.50, Longman was glad to secure the copyright after all. Robert Sweet had then finished his *Flower Garden;* the *Botanical Cabinet* was then being conducted by Loddiges, the *Botanical Magazine* by Hooker, *Botanist* by Maund, the *Magazine of Botany* by Paxton, the *Gardener's Magazine* by Loudon, the *Botanical Register* by Lindley, who in addition to his numerous other botanical works, started the *Gardener's Chronicle* a few years afterwards, and edited it up to the time of his death.

Of nurserymen, Loddiges of Hackney, had the finest collection and largest specimens of Palms, Screw Pines, Tree Ferns and similar plants in England; in after years, when the lease of the grounds had expired, and the stock was to be sold, a glorious opportunity was offered to Sir Joseph Paxton, who purchased and transferred most of the best to the Crystal Palace then just erected, where after flourishing for a few years, they were unfortunately destroyed by fire, and could not be replaced. Joseph Knight was almost as celebrated for new and good things in his place at Chelsea, as his successors, Veitch & Son, (formerly of Exeter,) are in the present day; Chandler, at Vauxhall, was noted for his vast and varied collection of Camellias; Rollissons, of Tooting, were coming to the front with Orchids. There were the Lees, of long standing, at Hammersmith; Ronalds at Brentford; Wheatly at Fulham; Lowe at Clapton; and others of familiar name and high standing in and about London, beside provincial celebrities, Lucombe, Exeter; Pontey, Plymouth; Skirving, Liverpool; Cree, Addlestone; and Dicksons, of note in almost every large town in Britain. Wilmot was growing his strawberries and raising new sorts at Islewort; Chapman, grapes at Vauxhall; Myatt, rhubarb at Deptford; Grayson, cultivating his

twenty-three acres of asparagus at Mortlake. *The Practical Gardener*, Charles McIntosh, reigned at Claremont, as locum tenens for Prince Leopold, (promoted in 1832 to the throne of Belgium,) himself to be soon after transferred to the Duke of Buccleuch's gardens at Dalkeith Park. Mearns was coiling his vines in pots at Welbeck, and stirring the hearts of the gardening world by the results which he professed to have achieved; Ferguson ruled over the Ducal gardens at Stowe, once the finest place in England; Forrest held rule under another Duke (of the *Smithson* family) at Syon; Paxton was the little duke and adviser in all things at Chatsworth; Sinclair had quitted the Bedford connection with his Gramineum, Salictum and Ericetum,(Woburnense respectively,) to become partner in the New Cross Nurseries, and been succeeded by James Forbes, of whom little can be said, excepting that he was a good practical gardener, and "boss" for a time, over your respected townsman, the late Chas. E. Sutherland. It is time, however, that my discursive gossip ended. Allow me, in closing, to make one remark. Forty years is only a short step in the world's history, and a short time to look back upon, but the last forty years have brought wonderful changes, especially in the advancement of science and its application to the useful arts. Gardening was the first of these in point of time, and having been closely associated with the wants, the habits and the tastes of mankind in all generations, has perhaps advanced more *steadily* than any other, but it does not appear to me (and those aside can best mark the speed of what is passing) that she has not of late years progressed so *rapidly* as some others, especially as her sister, Agriculture, and that gardeners are scarcely, if at all, better acquainted with botany, physiology, chemistry, and other matters of science connected with their calling, than they were half a century ago. How often do we meet with men fairly schooled in "the three R's," intelligent as regards every-day matters and current events, by dint of training, observation and experience, passing muster as good gardeners, and often achieving wonderful results; familiar with the name of almost every plant which passes under their eyes or through their hands, yet spelling and pronouncing the names of those plants most barbarously, and are utterly unacquainted with the first principles of growth and development, the structure, terminology, and affinities or classification of plants or any of the scientific aids to intelligent and successful cultivation. Lindley used to say, "As well call the man a *carpenter* who knows the *names* of the tools in a carpenter's chest, as the man who knows the *names* only of plants, a *botanist*. Gardeners to be successful must be thoughtful, studious, observant men, and as a class, are much respected; but even a small amount of culture and scientific knowledge would increase their interest in, and simplify the operations they too often perform mechanically, while it tended to their social elevation and their being recognized as men of education and refinement.

EDITORIAL NOTES.

The Centennial Pomological Judges.—We find the following in the proceedings of the Worcester Co. (Mass.) Horticultural Society:—

"Upon one feature of this Pomological Exhibition, however, it would be impossible to enlarge in too strong terms of censure. Massachusetts, Ohio and New York were wholly unrepresented upon the Committee of Judges. The exclusion of their statues from funeral processions in the decadence of ancient Rome, but served to recall to mind even more vividly the patriots Brutus and Cassius. And who of us, in looking through the roll of those who had been selected to adjudicate upon "Northern Pomological Products," could fail to note with amazement the absence of such names as John A. Warder, Patrick Barry, Charles Downing, John J. Thomas, and,—*clarm et venerabile nomen!*—Marshall P. Wilder. Honesty is an indispensable qualification for a just judge, but should not capacity also be deemed essential?"

It is a remarkable commentary on this paragraph that the utter ignoring of horticulture and agriculture in the programme of judges, and through which no judges for these departments were appointed, was the work of a *New England man.* The judges who did serve, did so without any recognition from the Centennial Commission, and without any arrangement for pay, while the regular judges had both. They worked steadily at this for from two to four days a week for *six months*, and then were told that as there was no provision made for Pomological judges, their services were expected to be gratuitous. If Downing, Warder, Thomas, Barry, Wilder, or that other gentleman *Clarm E. V. Nomen*, of whom we never heard before, were willing to undertake this long and weary service out of

pure desire, as pomologists, to see some justice done to the great pomological interests, such knowledge of their disposition never came to Philadelphia:—nor we do not know that either Brutus or Cassius ever did work like this; but if Massachusetts have any of these noble Romans in these days, she is quite welcome to send some of them along next time.

While on this unpleasant subject, we may take the occasion to do justice to three of these judges —Hoopes, Satterthwaite and Parry. These gentlemen would have been extensive exhibitors had they not been judges. They would undoubtedly have received honors as such, the record of which they would have been proud to have handed down to those who would follow them as memorials of their work in the first one hundred years of American progress; but all of this was sacrificed, because they could not as judges honorably report on their own productions. It is also but fair to state that while the pomological judges from other parts of the country, who were called in during the heavy week to assist, *by the Commission*, were paid $100 for the week's work, and which they earned much better than some of the regular judges in other departments, even this trifle was refused to the Philadelphia judges for six months work, and it was not until long after the Exhibition closed, that the more honorable members of the Commission shamed their associates into giving them at least enough to reimburse them for the food they had eaten on the grounds during the time they were engaged in the Commission's work.

We make these remarks without the gentlemen forming that jury knowing anything of what we write. But it is but simple justice to them. The Commission would not go behind the work of the New England gentleman, who arranged the programme and left out Pomology; the gentlemen forming the jury knew there was little chance of their being recognized, yet at the request of the Chief of the Bureau of Agriculture, threw themselves into a great task, where there was no prospective honor or profit, solely for the purpose of saving the great Pomological interests of the country from utter disgrace. They did at least expect to get the thanks of the pomological community for this work; but so far, nothing whatever has appeared of this character, but very much of which this extract is a choice specimen has, and this is their reward!

The Tumble Weed.—Quoting our recent remarks, the *Prairie Farmer* says:—"Oh no! The tumble bug—which by the way is not a bug—could only make use of the weed as a means of transportation for itself. The difficulty among the masses is, they have no time to learn *scientific* names. They leave that for the little circle of savants who do the christening. The plant is the white Amaranth, Amaranthus albus, of the botanists. We think, however, it is not the introduced variety, but a cousin indigenous to the West, growing in clearings, in newly-cultivated prairie land, and intended, perhaps, for the express purpose of scaring farmers' teams in the Autumn when the tumblers are flying about the roads and fields."

This confirms what Mr. Wier says in regard to the identity of the weed with its popular name, though Amaranthus albus does not blow about in that way, and Mr. Wier is most probably correct in his name, Cycloloma. Our good cotemporary evidently thinks botanical names a humbug—which by the way is not a bug—and it is pleasant to note that it took the time even to guess at Amaranthus albus. It is a new idea that it takes more time to learn an intelligible name, than one which requires numberless paragraphs to find the meaning of. Our friend does not surely mean that intelligence is only fit for "big bugs"—which by the way are not bugs, but "the biggest kind" of beetles!

[Mr. Weir's article on this subject, to which the Editor refers in this note, has been crowded out.—*Proof reader.*]

Conservatory of Mr. Henry C. Gibson.—A few days ago we enjoyed the favor of inspecting the beautiful conservatory attached to the city residence of Mr. Henry C. Gibson, of Philadelphia. The structure is but about 50 feet long, but is so arranged by paths taken round circular stands, as to seem double the size. The chief object of our visit was to see a plant of the exceedingly rare Vriezia Glazouiana, which is probably the largest of all the Browaliaceous, or to speak popularly,pine-apple like plants known. It was throwing up a flower spike, already three feet in height, and would probably be in full bloom in a few weeks. The plant was placed in a huge vase, with which it was admirably in accord. We were never so impressed with the tasteful adaptation of these ordinary stiff looking plants to high architectural beauty as on this occasion. The greater part of the collection is comprised of very rare plants, difficult to procure. The small size of the structure makes

these choicer articles particularly desirable, as there is no room for all. It is especially among Palms, Cycads, Bromeliads, Tree-ferns, and things like them difficult of propagation or of very slow growth, that we have to look for just such articles, and thus they constitute the prevailing features of this beautiful conservatory.

Just now the various Cycads were particularly interesting though being about making their new growth. They are never so beautiful as when throwing up their new fronds. We give an illustration of Macrozamia plumosa. This is a very rare kind, and still new. What it will be when it has a stem several feet in height, as many of the same order have in this collection, can be imagined, and will give an idea of the prevailing character of the vegetation in Mr. Gibson's house.



MACROZAMIA PLUMOSA.

In fact, there is as much interest in the stems of these plants as in the leaves and flowers of

many others. Here is a Thrinax elegans, and all round the bases of the fronds, around the stem is a fold of naturally woven cloth, as if it were being tenderly wrapped by nature for fear of its taking cold!

Perhaps the most singular plant in the whole house is a specimen of the celebrated Thief-palm —Phœnicophorium Seychellanum. The leaves on it being about six feet long, by four wide. It strikes one at once by the frond being entire, while most palms have more or less divided leaves. The fronds are at the same time finely plaited quite through to the mid-rib, and would make a complete umbrella in a rain-storm, under which one could sit in luxury, while it raged outside.

The Native Country of the Jerusalem Artichoke.—With the best of opportunities for judging, Prof. Asa Gray believes this to be an improved or selected variety of the Helianthus doronocoides, a wild sunflower of the Mississippi Valley. In relation to its history, he contributes the following to the *American Agriculturist*, which is tracing it pretty closely:—

"The reference to a statement in 'Palfrey's History of New England,' made it apparent that there was evidence upon this point somewhere in existence; and an enquiry made of our most learned scholar in Indian lore, Mr. J. H. Trumbull, of Hartford, Conn., now brings the facts to light.

"It appears that Sagard, in his 'History of Canada,' (1636,) and in his 'Grand Voyage,' mentions, as among the provisions of the Hurons, 'roots that we call Canadiennes or Pommes de Canada, and that they call Orasquienta, which are not very common in their country. They eat them raw as well as cooked,' etc. He mentions potatoes ('potates') which he had seen on board an English vessel, and which, 'they say, if cut in pieces and planted in the earth, in short time grow and multiply, like the Pommes de Canada.' This seems to show that the Huron Indians had artichokes in cultivation. Still earlier, viz., in 1612, Lescarbot, in his history, mentions roots found in the country of the Armonchiquois (Canada and Northern New England), as big as turnips, which were excellent eating, of a flavor reminding one of Cardoons, and which, when planted, multiply in a marvellous fashion. Possibly these may be the tubers of Apios tuberosa, or Ground-nut, but the account agrees much better with Artichokes. Now the evidence which the old herbalists furnish, and which Mr. Trumbull has looked up, make it clear that Jerusalem Artichokes went from Canada to Europe within a dozen years after the first settlement of Canada, viz., at Quebec. I cannot here enter into particulars; but suffice it to say, that the plant was received in England, 'Anno 1617,' and Italy, early enough to have got the name 'Jerusalem Artichoke' established at the date of Johnson's edition of 'Gerald's Herball,' 1633; for this Jerusalem is doubtless an English corruption of Girasol, sunflower; and the plant was at a very early date cultivated in the Farnese Garden."

Irrigation for the Farm, Garden, or Orchard: by Henry Stewart, New York, Orange, Judd & Co. It has long been our impression that systems of irrigation need not necessarily be confined to those parts of the country where there is little rain. Farming, and especially fruit and vegetable gardening, could often be made very profitable by the adjunct of cheap watering facilities. We boast of our natural advantages in the shape of rain, and indeed there are many natural beauties in those countries where the watering, though irregular, comes from the clouds. But as a mere matter of profit we have always held that larger and better crops ought to be had where water was wholly under human control, than when liable to have too much or too little at times from nature's hand. We can give water just when the crops need it, and stop when they have had enough. We cannot regulate in nature watered countries the *too much* part of these conditions; but, by some system of irrigation, we might be able to make up for nature's short comings. Generally there is nothing cheap enough in our Eastern cases to make it worth while to adopt.

But we think, after reading this book of Mr. Stewart's, some people at least will think differently. He explains all the ways, big and little, that are in general use for accomplishing irrigation; and the person who in the East dreads a drouth on his crop of strawberries will perhaps find as much here to comfort him as the inhabitant of Greeley, Col., would, who depends on the Cache le Poudre for his year's supply; or the Californian, who looks to his windmill to bring up from the depths of the earth his daily needs.

Transactions of the Massachusetts Horticultural Society—Part II., 1876. From Mr.

Robt. Manning, Secretary.—These transactions are full of interesting facts. Mr. Wilder finds that seedling Camellias, by grafting on mature plants, can be made to flower two years and eight months from the germination of the seed. The Society lost a valuable member in October last, in the death of John Fisk Allen, whose name is well-known in connection with the growth of the Victoria regia, after its first introduction by Mr. Caleb Cope. A large number of new orchids have been exhibited from time to time by Mr. E. S. Rand, Jr. Hovey & Co. have succeeded in raising a dwarf Hybrid Azalea between A. amœna and A. Indica.

Polyanthus, Amaryllis, and many of the good old-time flowers seem to have zealous cultivators about Boston. Rhododendrons are exhibited freely at the meetings, and a useful guide to the cultivator is the indication by marks of those which are hardy there, and those which are too tender for general open air growth. Indeed the lists of the best things exhibited and their adaptation to general wants, are full in all the departments, and very valuable. The premiums given to exhibitors are heavy. The six heaviest recipients in the flower departments have been as follows:—Hovey & Co., $513; James Comley, $302; E. S. Rand, Jr., $300; N. Gray, Jr., $200 C. M. Atkinson and J. B. Moore, $179 each. The names of the gardeners to these gentlemen, and with whom the credit is generally and properly divided, are not given. The fruit premiums are more distributed; the highest amount, $151, being taken by J. H. Fenno. The library department shows a strong vitality—a large number of valuable additions being made during the year.

Kinsey's Catalogue, Dayton, O.—The publisher desires to return thanks to Mr. Kinsey for a kind reference to the magazine in his catalogue. These courtesies work to mutual advantage. The more horticulture is assisted, the better for nurserymen, and every effort to help along a horticultural magazine, helps horticulture.

Messrs. T. T. Southwick & Co., formerly of Dansville, N. Y., are now permanently located at Rochester, making another excellent addition to the already long list of intelligent nurserymen for which that city is famous.

Music.—From F. W. Helmick, Publisher, Cincinnati, Ohio. "*He holds the Fort of Heaven,*" a "*tribute to the memory of P. P. Bliss.*" The bust of Mr. Bliss is the central figure in the title page, and as the writer of this once traveled several days in his company, he can testify to the accuracy of the likeness. Before the burning at Ashtabula, Mr. Bliss had just set to music some beautiful verses, the words adopted with but few alterations, from a piece entitled "Not Knowing," written by Mrs. Christian K. Ross, some eight or nine years ago; and it is among the most remarkable of coincidences that the authors of lines so full of perfect trust in Providence and resignation to the Divine will, should both be called on so soon afterward to put the bitter chalice to their lips.

QUERIES.

The Thirtieth Verse.—Mr. Harding writes to correct 30th verse for "39th" at p. 123, in last *Monthly;* but we suppose most readers of the New Testament will have readily detected the error of Mr. H.'s copy, which a too confiding compositor accepted without reference to the Book for confirmation.

The Jerusalem Artichoke.—In our last, page 126, we happened to say that the roots of the Jerusalem Artichoke do not taste at all like Artichoke. A correspondent sends us a brief note, referring to this and says, "does it not? it is at least certain that the old French settlers thought so,"—referring of course to the settlers in Canada. But as we read, it was the Indians who expressed the opinion that they "tasted like Artichokes," and this would require them to be acquainted with the taste of the Artichoke, or they could not know that there was any correspondence between the two tastes. The Frenchmen could not have communicated orally to the Indians an idea of what the Artichoke tasted like, nor could the Indians in the same way let the Frenchmen know what their "species of Sunflower roots" tasted like. This sort of knowledge cannot be taught in this way,—it can only come from personal experience. As for the Artichoke itself, it is not as hardy as the Jerusalem Artichoke. We doubt whether the French ever raised it in Canada. Their knowledge of the taste must therefore be confined to their recollection of it as eaten in their native land. The paragraph, to make any sense at all, must mean that when the Indians told the Frenchmen men had Sunflowers with edible roots,the Frenchthey replied that they must taste like the Arti-

chokes they had known in France. The paragraph cannot positively mean that the Frenchmen *saw* these roots under culture by the Indians, because if they had they would have known at once that it was the Jerusalem Artichoke, as both kinds were well known in Europe at that time. Any Frenchman who knew enough about vegetables to carry the taste of the common Artichoke to this country with him, would surely have some acquaintance with the Jerusalem Artichoke. This is why we thought the paragraph "of little moment," and it is so plain that we did not expect it would be necessary for us to enter into any reason why.

But having been thus led to put our feet into it, we may as well go right on and give expression to a long pent up doubt that the Jerusalem Artichoke ever derived the name from any fancied resemblance to the common Artichoke. In his younger days it was the writer's privilege to be where both were often served up at table, and he could never detect any resemblance, nor could he ever find any one who could. Old Parkinson even could see no reason for such a name, and urged that they be called, instead, "Potatoes of Canada." It is more likely that the whole name is a corruption of some other, as we all admit "Jerusalem" is. The roots were sent to England from Italy in 1617, but it appears to have been in the possession of Mr. Goodyer before this. However, it came to England with an Italian name, *Girasole articiocco*. From Girasole we have "Jerusalem," and no doubt articiocco gave artichoke. But what is articiocco? The name of the old Artichoke in Italy is Carciofo, so plainly, the Italians did not associate the plant with the common Artichoke. The Greek word *artutikos* signifies "fit for use as a seasoner," and it is just as likely that the roots were at first used as an ingredient in soups, which is about all they ever were fit for. Even in 1629, we read that it was thought so poorly of in England, that even the poor despised it. It seems never to have been popular as an article of food. There appears to be no Italian root from whence to derive the word, Articiocco and why may it not have been made up from the Greek, just as such names are made up now? Any word in a long series of years may become corrupted. The French *artichaut* might in time be made articiocco by a neighboring people. But this will not do, because the name is too old for such an explanation.

Now philology is not one of the special studies the *Gardener's Monthly* is established to promote. We venture on it here with some hesitation, but as the matter has been a puzzle to us for some thirty years, we thought best to "out with the whole thing" under our good correspondent's temptation.

HORTICULTURAL SOCIETIES.

EDITORIAL NOTES.

AMERICAN POMOLOGICAL SOCIETY.—The American Pomological Society having accepted the invitation of the Maryland Horticultural Society, the undersigned give notice that the Sixteenth Session of this National Association will be held in Baltimore, commencing Wednesday, September 12th, 1877, at 10 o'clock A. M., and continuing for three days.

All Horticultural, Pomological, Agricultural and other kindred Associations in the United States and British Provinces, are invited to send delegations as large as they may deem expedient; and all persons interested in the cultivation of fruits are invited to be present, and take seats in the Convention.

It is confidently anticipated that there will be a full attendance of delegates from all quarters of our country, thereby stimulating more extensive cultivation by the concentrated information and experience of cultivators, and aiding the society in perfecting its catalogue of fruits. This catalogue includes fifty States and Territories, most of which have their columns filled with a great amount of information as to the fruit adapted for culture in the respective locations. Many of these are yet incomplete; and it is the object of the society, from year to year, to fill the blanks, and bring its catalogue nearer to perfection. To accomplish this object as fully as possible, the Chairman of the General Fruit Committee, P. Barry, Esq., Rochester, N. Y., will send out the usual circulars of inquiry; and it is desirable that these inquiries should be answered at an early day. The various State and local committees are urged to respond to the circulars as soon as practicable.

The coming session will derive a special interest from its location in the midst of the great fruit-growing region of the Atlantic coast, and also from the fact that it is the first meeting held since the expiration of the first century of our national history. It is desired, in this connection, that the Vice-Presidents of the several States, Territories, and Provinces, should furnish or procure, as far as possible, short historical sketches of the rise and progress of fruit-culture in their respective districts, from their settlement up to the year 1876, to the end that the forthcoming report may give a complete view of the pomological history of the various parts of the country. State and local Horticultural Societies are respectfully requested to co-operate and aid in this work.

Arrangements will be made with hotels, and, as far as possible, with the various railroad lines terminating in Baltimore, for a reduction of

fare. Wherever possible, it would be best that such arrangements should be made by the various delegations with roads in their localities, as rates made by Baltimore roads will apply only to their lines.

Members, delegates, and societies are requested to contribute collections of the fruits of their respective districts, and to communicate in regard to them whatever may aid in promoting the objects of the society and the science of American pomology. Each contributor is requested to prepare a complete list of his collection, and to present the same with his fruits, that a report of all the varieties entered may be submitted to the meeting as early as practicable. By vote of the society, no money premiums will be offered; but a limited number of Wilder Medals will be awarded to meritorious objects.

At the same time, from September 11 to 14 inclusive, the Maryland Horticultural Society will hold a grand exhibition of fruits, plants, flowers, and other products of horticulture, by which an increased interest will be given to the occasion.

Packages of fruits, with the names of the contributors, may be addressed as follows: "AMERICAN POMOLOGICAL SOCIETY, care of William B. Sands, Baltimore."

All persons desirous of becoming members can remit the fee to Thomas P. James, Esq., Treasurer, Cambridge, Mass. Life-membership, twenty dollars; biennial, four dollars. Life-members will be supplied with back numbers of the proceedings of the society as far as possible.

MARSHALL P. WILDER, *President*,
Boston, Mass.
W. C. FLAGG, *Secretary*, Moro, Ill.

The Secretary, for the purpose of securing a more complete statement of facts, solicits copies of all publications relating to fruit and fruit-growing, in all the States, Territories and Provinces in North America.

COMMUNICATIONS.

CENTENNIAL EXPOSITION—POMOLOGICAL SECTION.

FROM REPORT OF BURNET LANDRETH, BUREAU OF AGRICULTURE.

The display of fruit commenced upon the 16th of May and continued without intermission until the close of the Exhibition. Among the first displays were one hundred varieties of apples exhibited by the Commissioners from Australia; fifty varieties exhibited by the Michigan State Centennial Board; tropical fruits in large variety from Bermuda and Jamaica, and vegetables also from Bermuda and of home growth. During the heat of the Summer, the display was small, but in August it rapidly increased, and by September 1st had reached proportions so large as to demand more room than was afforded by the tables in nave and transept in Agricultural Hall. The Pomological Hall was then occupied, and for six weeks consecutively. During the week commencing September 11th the National Pomological Society held is annual session in Philadelphia, and witnessed a display of fruits never before approached in quality, variety and quantity. The various Pomological and Horticultural Societies in the United States and Canada vied with each other on this occasion in the excellence of their displays, which in the aggregate required 12,500 dishes in their presentation.

The first of the following tables gives the sources of supply during the week commencing September 10th, and the second the result of the entire season's exhibitions:

	Individual Exhibitors	Collective Exhibits.	Dishes.	Varieties.	Specimens.
Connecticut	1	1	903	393	3,520
Delaware	1		8	8	24
District Columbia	1		66	66	407
Illinois	1		1	1	6
Kansas		1	315	200	1,475
Minnesota		1	195	121	964
Massachusetts	16	1	824	821	3,847
Maine		1	133	133	645
Nebraska	1	1	499	227	3,744
New York	10		1135	1,116	7,481
New Jersey	9		72	56	377
North Carolina	1		100	58	993
Nova Scotia		1	247	247	1,988
Ontario	138		1449	408	8,331
Oregon		1	135	117	971
Ohio	1	1	1,068	258	5,168
Pennsylvania	20		927	539	7,633
Wisconsin	1	1	480	381	2,055
Michigan		1	1,000	320	7,000
Iowa		1	1,600	342	4,900
California	1	1	200	40	1,400
Miscellaneous	11		1,000	215	7,000
	213	14	12,357	6,167	70,429

FRUITS SHOWN DURING THE EXHIBITION.

	No of Varieties.	No. of Dishes.	No of Specimens.
Apples	875	40,000	280,000
Crabs	24	1,440	8,000
Pears	457	11,425	79,975
Grapes	157	3,040	12,160
Plums	98	1,960	13,720
Peaches	14	96	951
Nuts	25	210	1,680
Melons	5	20	50
Tropical fruits	20	200	1,000
Potatoes	610	1,500	9,150
Vegetables	200	1,500	8,000
	2,485	61,391	414,685

The Pomological Judges examined patiently and critically over 2000 distinct dishes of fruits. No reference is made in the above tables to the fruits shown in State Buildings.

[It is but justice to Mr. Landreth to say that, while he had one of the most difficult of all bureaus to manage, he alone of all the superintendents of departments, gave his services to the Commission entirely gratuitously; and yet no department was more efficiently served.—Ed. G. M.]

THE

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DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

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FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

Since our first volume, wherein we described how to prune evergreens, it has become a sort of mania, and, where the principles are not well understood, we notice the tree is frequently spoiled. It should be remembered that when the sides of an evergreen is pruned to make it bushy, the leading shoot has to be shortened at the same time. Shorten this leader to within a foot of where the shoot pushes, which you would adopt as the new leader—this will serve as a stake to tie the new leader to, which should be drawn as closely to this "stake," at its junction with it as possible, so as to leave as little of a "link" in the main trunk as we can; next year this "stake" can be cut out altogether. It is always of more benefit to the compact beauty of an evergreen to cut out the leader, than to shorten in the side shoots; and in many cases, it is all that is required by the new art. No trees, evergreens especially, should have grass permitted to grow around the roots for a year or so after planting. Grass absorbs moisture, and the tree will probably want all about it for itself. When well established the luxuriant growth shades the ground, and grass cannot grow then very strong, and does little injury.

Evergreen hedges will require attention as they grow. Where the height desired has been attained, the top and strong growth should be cut back while they are still watery. The side shoots need not be touched till past midsummer. All wise people now employ the conical shape for hedges. In cutting back the top growth at this season, the conical form can still be preserved.

The care of the lawn is always a leading object in a well-kept American garden. Mowing machines are often set too low. It is an injury to cut grass too close. Better cut often and leave the grass on the plants near half an inch high.

Next to the lawn, the walks are the most striking feature of a well-kept garden. Weeds should be taken in time, and the labor of keeping them down will be very slight. The edges or "verges" should be trimmed at every mowing of the grass-bordering; for which purpose a common sheep-shears, or grass-edging shears, made specially for the purpose and sold at most horticultural stores, should be kept on hand. Washing by heavy rains should be guarded against; or when so injured, speedily repaired.

After the walks and lawns, the flower-beds should be a constant source of attention. If the plants appear to suffer by drouth, there is no better remedy than to place a fork around the plant and loosen up the soil deeply, without disturbing the plant more than can be avoided. After being thus loosened, it will not dry out near as much as before. Above all, keep the surface continually broken by hoeing and raking fine. Nothing is so sure a preventive of soil drying as a loose, porous texture.

Another plan with trailing plants, such as verbenas and those usually employed in masses, is to peg them over the surface as fast as they grow. They thus shade the soil, and so far check evaporation. The best pegs for this purpose

are made of any straight twigs about a quarter of an inch or less in diameter, and split in two, lengthwise. These will not break when bent in the middle, as unsplit pieces will. There is a little art required even in splitting these twigs properly, so as to get them of equal thickness throughout. The edge of the knife should be watched, and when either half is splitting thinner than the other half, the back of the blade must be pressed against the thin section, which will cause the grain of the wood to run in again toward the pith. And so on, as the splitting progresses, the alternate action of the back and edge of the blade will keep the slit straight through the middle at the pith.

Herbaceous plants, now so popular, should not be allowed to seed, unless some be desired for propagation. In that case leave enough for your wants. It does not hurt some kinds, but many are much weakened, and die in the Winter, especially some Pentstemons. Cut to the ground as soon as the flowers fade. This is true of other plants not herbaceous. The best rose-growers cut off the blossoms as they fade.

Spring planted trees often show signs of suffering as the season rolls on. A little pruning is often the best remedy. If that is not a full success, hammer the soil about the roots so as to pulverize, and press firm, and if this does not do, give one good thorough watering. Watering newly planted trees requires much judgment. There is always danger in it. The roots, already weak, are liable to rot. If a tree is not *growing*, that is in growth, water is of little use to it.

COMMUNICATIONS.

OLD THINGS BECOME NEW—MAGNOLIAS.

BY F. R. ELLIOTT.

I have just received the April number of the leading monthly horticultural magazine of the the United States, if not of the world, but like all of past time, now and then an old thing becomes new. To-day I read communications from several parties touching the Magnolia acuminata, as a valuable stock on which to engraft or bud other varieties. I make no claim to knowledge, but thirty years since I propagated Magnolia glauca, tripetala, macrophylla, conspicua, Soulangea and purpurea by both budding and grafting on acuminata seedlings that I had grown from seed. At that time there were many varieties of to-day unknown. The cordata, glauca longifolia, Thompsoniana and acuminata variegata were unknown. I do not count the "tripetala" as a hardy root stock on which to work. It is a variety that does well, say in the climate of Philadelphia, but rarely at the north, or above 42° of latitude.

It rejoices me to note that Prof. Jared Potter Kirtland is credited as connected with this subject; a man who has grown trees from the coming of seeds to a perfection of bloom unequalled; and in *cherries* stands the *head light*, both in this country and abroad, as having produced varieties that here stand first; and Thos. Rivers, well known as a fruit man of England, says there is no equal to "Kirtland's" Early Prolific. Prof. Kirtland has grown many Magnolias from seed, and experimented in the art of budding and grafting one upon another. The comments, by Maxwell, when he tells of a tree of glauca in Kirtland's grounds, twenty-one feet high, propagated from a seedling of glauca imbedded in the acuminata stock, are true and reliable.

Josiah Hoopes, whose word is generally reliable, says, on p. 100 of the April *Monthly*, that "the glauca is difficult to work." Has he ever tried side grafting? Magnolia glauca longifolia is just as easily put upon acuminata as any other variety, and to me is one of the most beautiful in form of growth and foliage.

Not that you do not all know just how to engraft one Magnolia upon another, let me ask you to try side grafting, making your cutting or graft two weeks before inserting, thus giving the stock a full circulation of sap; set the graft upon stock or limb that can be easily bent over, just as soon as you note the graft to receive from its association vitality; then bend the branch or stem backwards until the graft is fully united, when it should be cut away.

VERBENAS AND ROSES IN IOWA.

BY MRS. S. E. N., CORNING, IOWA.

"The Verbena" number of the *Monthly* must have been welcomed by those who are troubled with the rust, but in southwestern Iowa our trouble is of a different nature. The Verbenas commence blooming early, and are the finest I ever saw while they *do* bloom, or until about the middle of July, when they grow so very luxuriantly and take root at every joint; indeed,

they cling so close to the ground that the leaves appear almost as though they were glued down. After July they scarcely bloom at all. One year I tried keeping them raised up *a little* from the ground; they bloomed no better. The next year the bed was prepared a foot in depth, with half sand, with no better result; and last year we tied them all up to sticks as they grew; they did only a *very* little better. But this is an unsatisfactory way, as they grow so very rapidly. Can you give any light on the subject?

But if our Verbenas annoy us, our Roses are charming. I never saw anything to compare with them in the Eastern States. The foliage is remarkably fine; there are no ugly slugs or worms, and to those of us who for many years have fought these pests in the East, the Roses here are specially enjoyable.

CALIFORNIA PLANTS EAST.

BY W. C. L. DREW, EL DORADO, CAL.

Your correspondent, Mr. Josiah Hoopes, in the April number, in speaking of a California plant, says: "Like almost every Californian tree or shrub that I have tested, positively refuses to live here for any length of time. It literally burns up beneath our hot suns." No wonder this proves to be the case, for they are generally treated as differently from what they grow in their native haunts, as it is possible to treat them.

As a general rule, there are a few plants set out, either free from all surrounding vegetation or in the shade of trees; this is wrong, entirely wrong. In California everything grows in vast tracts or masses; in these masses the plants are all of similar growth, size and height; here and there a tall pine or oak may tower above them, but never shades them much; the result of this massing is that the roots and lower branches are always protected from the fierce rays of our broiling hot suns, than which Eastern suns can be no hotter, and from the cold blasts of Winter, while the leaves, the flowers and upper parts receive the full benefit of the sun's heat and light. This is the way all our plants grow, and excite the wonder of the world.

Treat them in California as in the East, and they die as surely. Take our Manzanita, which is one of our hardiest plants, cut all the surrounding shrubs from around it, and leave it alone, as a specimen plant, as planted in the East, and though the roots have not been disturbed, it will in the first season begin to wither, and in two years die entirely. Again, trim away all the surrounding shrubs from a plant growing under a tree where it is shaded, it will become a prey to insects, and be covered with fungus, as in the East.

These are both true cases, and I have noticed it time and again. I have never seen a healthy specimen of any of our plants where it stands alone, with two exceptions; they are the oak and pine, both of which do best as single specimens.

Californian plants receive no water from May to October, everything being dry and hard as rock, while from October to May the ground is as full of water as a sponge just out of a dish of water. This fact of their being so dry over Summer, lets the wood get solid (in nearly all our shrubs and plants, except annuals, the wood is very solid and hard); whereas, if they had been watered, the wood would have been more or less spongy and wet, and liable to effects of frost. Treat all plants nearly like they grow, and you will have success. In case you have not enough to plant a large clump, plant among similar growing shrubs or plants, but never under trees.

THE WEIGELAS.

BY GEN. W. H. NOBLE, BRIDGEPORT, CONN.

These lovely natives of China, now classed as Diervilla, are the most charming of modern shrubs. It is only about thirty years since Mr. Fortune brought them, in joyous company with the Forsythias, to gladden us "outside barbarians." They have since, principally, I suppose, through crosses of the rosea and amabilis, bred a wonderful family, of varied growths, and tints of leaf and bloom. Yet one rarely sees any but the old Rosea outside the grounds of the rich, the nursery, or the public park. This comes a good deal from their tame and stingy treatment in our catalogues, and dearth of effort in our salesmen. The growing taste of our people for flowers, above all, for rich, blooming, hardy shrubs, is as fat a placer as rose culture for somebody to strike into. A little more of just and generous rhetoric would hasten every flower lover in the land to invite their smile. They are almost all so hardy, all so quickly root from slips and cuttings, and have such rich variety of flower and leaf tint, and of style, that the routine, which invites and posts tiny rootings of the rose to our

doorsteps, would soon people every tasteful homestead with these tasteful Weigelas.

Their need of some brighter tinted word-painting takes form, when a leading catalogue sets down the *Weigela nana variegata*, the dwarf striped Weigela, curtly as "a variety with variegated leaves and pink flowers," and the larger old variegated with still tamer and more stingy note. These tintless words but faintly present the maidenly grace and purity which robe this Weigela nana at the season of its bloom. Then its leaflets daintily changed in white and bronze and green, from out whose bosom lift gently blushing florets of an airy, evanescent pink, gives it semblance to such a divinely chaste bouquet as might have fallen from out the garden of the sky. On leaf, in gentle tint of green, and in its dainty, rosy bloom, it rivals those limpid, lingering lines that faintly tinge the far off floating clouds of morn or eve. It is cruel to slight such a plant with word-tinting, either terse or tame.

Again, the Weigela Desboisi, one of our foremost catalogues merely notes, as a "deep rose colored variety." Another of high standing only tells us of its "immense numbers of very dark rose colored flowers." Such dim portraiture brings out but faint likeness of one of the most brilliant of flowering things. In lavish, lasting, radiant bloom, it rivals every hardy shrub. Deep reddish, rosy bells robe its whole spray and load it into graceful droop. It is a glory in the noontide radiance. In the rich hues of parting day, it seems ablaze with absorbed brilliancy.

For many years a plant posted well to the front of my grounds, has won more lingering gaze and question from flower lovers than any other bloom. And in those grounds there stands pretty much every hardy blossoming thing. Yet this Weigela Desboisi carries off the palm. It counts as warm admirers not only those who cherish a few choice plants, but those whose conservatories store the wealth of the floral world. Such eager look and quest following this lovely variety, more than hints that a brighter word-pencilling of the plant might have made many purchasers of those who thus admiringly inquire its name and nature.

I shall note only one other of the slighted and rare visitors of this tribe—the Weigela versicolor. I find no description of this plant anywhere, nor its name in any but the Flushing catalogues. Doubtless, our leading nurserymen know it well, but that they give no more note or place to a plant so wonderfully endowed, "passeth all understanding." This Latin name, "Weigela versicolor," bespeaks almost to the eye of any, as in translation, a plant "*of changeful hue.*"

A cluster of its flowers is of itself a bouquet of divers tinted blossoms. A branch glories in blooms of every varying shade, from white to deep red, and crimson darkening to maroon. Till the flower drops, its tint is ever changing; a white to-day, to-morrow shows a pink, or salmon. A flower blooming out a pink, day by day, deepens into dark crimson. Thus, onward through an endless maze and interchange of color, covering pretty much the whole spectrum. A plant so robed in a coat "of many colors," wearing flowers of such changeful hue, surely deserves wide and special note, as one of the wonders of vegetation.

The aptness of the Weigela to take up on its seedlings a new and better style of growth and bloom, promises most happy results from judicious crosses, that varieties of such rich tints on leaf and flower, so diverse therein, and in their style of growth, have descended from parents without such traits, marks a wonderful floral evolution. It is only rivalled by that tireless flow of rich and lovely blooms, which owe their parentage to only a few species of the Gladioli. The Weigelas have already shown floral possibilities, promising a rich future. Some bloom but once, some twice, some thrice, and some, like varieties of the rose, are hardly ever without a show of blossoms. A plant, holding on its roll such wide-apart colors as the deep, dark crimson of the floribunda, the white of the alba, the clear, full belled pink of the amabilis, the change from white to many shades of pink as the isoline, and with a quiver full of assorted tints, like the versicolor, added to the clear yellow of the old Diervilla, betokens the likely advent of still more notable excellence, to come out of judicious crosses.

I look upon these commingled hues of bloom, before long to glow in endless interchange of complexion, from the big, bell-shaped flowers of their descendants. Fiery scarlet throats sweeping into golden rims; borders of maroon looking down into throats of yellow and crimson chenay; then, as to the promise of their foliage out of the nana and others of such divers tinted leaves, shall come zonales and all the ceaseless round of variety which skilful florists learn so surely to evolve. I look to see this journal yet record double flowered Weigelas of every shade and commixture of colors; to send out cromoliths of

new Weigelas, zonaled and chenayed on big leaves through every shade of green and bronze, of white or golden tinge. Why not? If not in our time, still it is coming soon. That taste for flowers, that thirst, so readily supplied but never quenched, by the facilities of the mail; that joy in floral home adornment and the gardenesque, so indexed by our rich and well thumbed catalogues, by paths richly stored with floral wealth —a joy becoming every day so spoken in a thousand ways, over the advent of new blooms and plants of mark—tells me that sure welcome will beget the coveted advance.

One thing let every lover of the Weigela note. The bloom of this plant is so profuse, that it thirsts when in flower for abundant water. Not only the richness, but the lasting of its bloom, is wonderfully aided by a perfect deluge. Not a pail or two dashed around, but if possible, where you cannot call on the public water, a barrel full on end, slowly yielding its supply, and again and again renewed, will well repay all your trouble. Around that Desboisi, when in bloom, I soak the ground wide out from the spread of its limbs. This is partly the cause of its lasting and brilliant show. Most flowers love abundant moisture, but the Weigela is a perfect glutton in drink.

AMPELOPSIS VEITCHII.

BY. J. M.

It is only a few days ago that a friend said to me, that he did not think this Ampelopsis was hardy, as his plants appeared to have been injured by the Winter. I have found it to be perfectly hardy. I have one planted in the worst possible place for a tender vine — the Southern side of my house. It has been out two Winters now. Examining it to-day, I find it uninjured by the late severe Winter, and it is pushing from the extreme end of its branches; and this, too, although the sun has been shining on it every clear day during the Winter. This seems to prove its hardiness. I am glad this is so, for it is certainly one of the best vines we have. It clings to the wall so closely and so tenaciously that the fiercest winds do not dislodge it, nor can it be pulled down without breaking it.

EDITORIAL NOTES.

Evergreens at St. Louis.—The various kinds of arborvitæs had much of their foliage injured by the severity of the last Winter. Retinospora obtusa and pisifera stood remarkably well.

Lilium catesbæi.—This pretty little Southern lily, Messrs. Krelage say, does not endure outdoor culture in Holland, but is a choice bit for greenhouse culture. This hint may serve Northern gardeners who have mostly failed with it in the open air.

German Asters.—Queen Margarets, the French and Germans call them, still undergo improvements. One of the latest is a race which, under each flower, has the leaves arranged as if they were the edgings to a bouquet. The whole plant in blossom looks like an artificially arranged bouquet of asters, with the green leaves arranged through the head. They are called "Bouquet Asters."

Abies Engelmanni.—We have recently examined growing plants of Abies Menziesii, from Colorado, and plants from seed from the Pacific coast, and there seems to be a difference. We have also compared a plant of Abies Engelmanni from a graft cut and worked on the Norway Spruce, with the "Rocky Mountain Abies Menziesii" of our gardens, and see no difference, though the one is a small plant and the other large, and that may be something to be considered. The Abies Engelmanni we thought we saw in Boston has been pronounced "to be Colorado Menziesii" by Dr. C. C. Parry, we understand—and no one should know better than the one who first discovered the Engelmann Spruce —but from the facts we have given, we fear there must be a mistake somewhere. We will not say there is, but as there is already so much confusion in coniferous nomenclature, we may at least invite a "suspension of opinion" for a little while yet.

NEW OR RARE PLANTS.

Lilium Humboldtii. — This beautiful Californian Lily has already produced numerous varieties in the hands of the Dutch culturists. Messrs. Krelage already announce seven named and distinct varieties.

Leucophyta Brownii.—*A New Silver Bedding Plant.*—Mr. W. C. Barry gives the following to the *American Agriculturist*:—

"Ribbon gardening and carpet bedding have

of late become so popular, that the advent of a new plant specially adapted to these purposes, will no doubt be hailed with delight. But whether, strictly speaking, this may be called a new plant, is a question I wish some other than myself would decide. It certainly is but little known in this country, and has as yet found its way into only one or two florists' catalogues. It would be a satisfaction to learn its history, and the writer, as well as others no doubt, would appreciate any information which can be given about it. A year ago, we received a plant from a friend, who could do no more than give the name and recommend it. It is of neat, compact habit, grows about 12 inches high, and has wiry stems and foliage of a whitish or grayish color. It will bear clipping or trimming to any extent, and when used for edgings of beds, produces a fine effect. Being a slow grower, large plants should be secured for bedding out. There is only one thing which may prevent its becoming very popular, and that is, the liking which birds have for its foliage for nest-making. At least such was our experience last Summer, when we had a number of fine plants destroyed, and their loss could be accounted for only in this way. I trust we may hear and learn more about this Leucophyta.—W. C. B., *Mount Hope Nurseries.*"

NUTTALLIA CERASIFORMIS.—It is provoking that we in the East cannot grow well our Californian plants. Perhaps, as Mr. Drew says, we must study their special requirements, and then we may. Every now and then we note that the rarer ones are blooming in England. The following from the *Gardener's Chronicle* is about one of them :—

"Several Spring flowering shrubs are coming into beauty at Kew. Nuttallia cerasiformis is one worth individual mention. It is of small size, and bears on erect branches a multitude of depressed racemes of white flowers in company with young leaves of the freshest green. It is a native of California, and though introduced long ago, does not seem common. A nice specimen may be seen near the Fern-house; and another near the Temperate-house. The fine example of Prunus divaricata near the new range is now in its finest condition."

GOLDEN-LEAVED POPLAR. — Of this already noticed in the *Gardener's Monthly*, the *Gardener's Magazine* says:— The Golden Poplar (*Populus canadensis aurea van Geerti*) has fully borne out the description given of it by Mr. C. van Geert, of Antwerp, who introduced it to commerce in the early part of last year. Messrs. C. Lee & Son, state that in their nurseries the rich golden coloring of its ample leafage was retained much better during the tropical heat of last Summer than the color of the foliage of the Golden Oak and Golden Catalpa. This poplar is of large and rapid growth, and is of much value for producing distinct effects in park and woodland scenery. As a general rule golden-leaved varieties do well in our climate—silver do not.

A NEW DOUBLE WHITE VIOLET.— This comes from Ghent, and is appearing in English advertisements. If you order it, you must ask for Viola odorata alba fragrantissima plena, says the *Gardener's Chronicle.*

STYRAX JAPONICA.—A new hardy shrub from Japan, the flowers of which when the plant is in full bloom resemble a shower of falling snow flakes—a valuable acquisition for cemetery purposes.—*P. Henderson.*

BROWALLIA ROEZLI.—The Browallias are now among the best plants we have for bedding purposes, giving, as they do, a constant succession of bloom throughout the Summer; and this new variety will no doubt prove a great acquisition, as the same range of color, blue or pure white, is here to be found as in the old sorts, while the flowers are nearly double the size of any of the other varieties. It makes a compact plant of about 18 inches in height.—*B. K. Bliss.*

NEW JAPANESE HOLLYHOCK.—Entirely distinct, which was offered last year for the first time we believe. It differs from the ordinary Holyhock in its pyramidal form and dwarf growth, growing only about two feet in height. The flowers are semi-double, of a bright scarlet crimson; blooms during the Summer months.—*P. Henderson.*

SCRAPS AND QUERIES.

STERNBERGIA LUTEA.—A correspondent from Virginia tell us that this pretty Autumn flowering bulb is hardy there. How is it in more northern parts?

TREATMENT OF HARDY AZALEAS.— B. F. L., Cincinnati, O., inquires "whether the hardy Azalea requires the same care to guard against

lime in the soil that the Rhododendron does?" We cannot say from personal experience, but from analogy we should say yes. They require very much the same treatment in every respect that the Rhododendron does, except that we may plant them in places more exposed to wind than we do Rhododendrons—they are a little "hardier"—the word meaning that they will stand a little more rough usage.

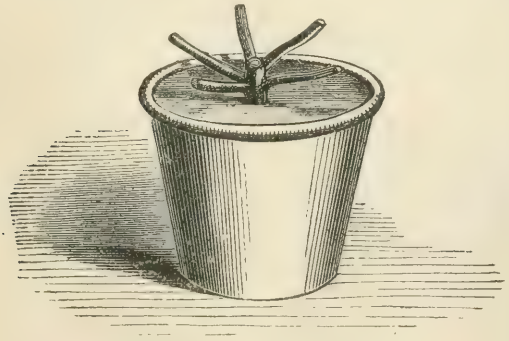
PLANTING LILIES.—B. F. L., Cincinnati, O., says:—"I planted several species of Lilies last Spring, but they have not done as well as I wished. Our soil is limestone, would that effect them?" [We do not know that Lilies object to limestone, though they are not often found wild in limestone districts. They love rich sand, or as one might say alluvial soil. Your trouble is probably from Spring planting. Lilies should be always set out in Fall.—Ed. G. M.]

GREEN HOUSE AND HOUSE GARDENING.

SEASONABLE HINTS.

There is not much to be done in the greenhouse, most plants having been set out under the shade of trees or arbors last month. Our Summers are too hot to make greenhouses at that season enjoyable, but there are generally some plants under cover that it is not practicable or desirable to put into the open air. The red spider and other insects are apt to be very troublesome, and it is best to keep sulphur on plates set around.

Many plants get too large for small houses, and it is well to keep young ones propagated and coming on. But often the old plant is best cut down and made new. This is particularly the



case with the Geranium, or, as we used to say in old times, the Cape Pelargonium. These should be cut back to a few inches of the main stem. Then leave the plants to grow a little. After the buds have started into growth a little, shake out the plant and reduce the roots somewhat and start again in a smaller pot. The annexed cut illustrates what we mean

Oranges, Oleanders, and other large plants in pots or tubs, that are now commencing to grow, should be shifted into larger or fresh soil if they require it. This is generally known by the growth being weak, and the leaves small. Sometimes the plants are sickly through the soil having become sour, and the roots, in that case, are rotten. This is usually known by the leaves of the plant being yellow, and of a very sickly appearance. The best way is to take out and wash the roots, just before or as growth is commencing, and repot anew in fresh soil, employing the smallest pot or tub that the roots can be well got into. Cuttings of Geraniums or similar plants, required for flowering in houses next Winter, should be put in at this season. Camellias and Azaleas, and other things that it is desirable to inarch, may be operated on as soon as the wood is firm enough; that is, as soon as it has progressed from the watery to the woody state.

COMMUNICATIONS.

NOTES ON THE ADIANTUM FARLEYENSE AND DOUBLE PRIMULAS.

BY HENRY CORBETT, COLLEGE HILL, OHIO.

A. Farleyense I think the most magnificent Fern in cultivation. It was introduced into England from Barbadoes in 1865.

Too much praise cannot be given to it; and a few words on its cultivation may be of interest to your readers.

At the Cincinnati Exposition in 1875, a plant was exhibited some three feet in diameter. This plant, some fifteen months previous, was growing in a two and a half inch pot. This will show how quickly fine specimens can be grown, under proper treatment. This Fern, unlike most others, makes a rapid growth through the Winter. A temperature of 60° must be kept up, and the plants not allowed to become dry at the roots or syringed overhead. It requires a compost consisting of turfy loam and fibry peat, broken up roughly, with a little sand and broken charcoal. It is essential that good drainage be secured, filling the pots about one-third of their depth with crocks, with a layer of rough peat over them. Keep a liberal supply of tepid water at the roots. Shade is necessary, and a moist atmosphere.

The double white Primula at this season of the year needs special attention. Where propagation is desired, the general plan is to root and divide them in September, but plants so propagated are too small to produce many flowers the coming Winter, so I will give my plan of rooting them in early Spring:

In February the bare stems of the plants are carefully cleaned, the stem of all side shoots cut half way through, down as near the soil as possible, a layer of moss placed around the edge of the pots and the centre filled in with sifted leaf soil and sand, so as to cover the bare stems. Young roots are soon produced, and by March 16th all the side shoots will be well rooted and ready for dividing. Through the Summer the plants are grown in frames facing the north and placed on ashes, as a security against worms. The plants are potted in sifted soil, composed of friable loam and leaf mould in equal proportions, with a liberal allowance of sand. A porous soil is of the utmost importance, the delicate, silky roots being unable to penetrate a clammy compound, let its richness be ever so inviting.

HOT WATER ON INSECTS.

BY X.

It may, perhaps, be of some value to say to your readers, that for a number of years I have been in the habit of trying various means to kill insects that I collect for cabinet specimens, and that the best remedy I have yet tried is *hot water*, or even heated air.

Having the insects confined in a stout glass collecting bottle, I gradually immerse this in hot water, or stand it in the oven of a hot stove on a brick, and I find that life is destroyed quicker and more effectually in this manner than by any other means I have yet employed. True, *strychnia* or *prussic acid* might be more sudden in its effects, but these things are too dangerous to handle for common or frequent usage. The water need not even be hot enough to scald; and doubtless there are many plants, shrubs, trees and vines, hardy enough to bear water hot enough to kill insects, without being in anywise injured by it themselves.

THE NEW SO-CALLED HYBRID TEA ROSE, "BEAUTY OF GLAZENWOOD."

BY G. G.

Who would have suspected that the above great novelty in the Rose line, which has been advertised in English catalogues and horticultural publications in such glowing terms, would turn out now to be nothing less than our old acquaintance, "Fortune's double yellow," but so, I see, have the Judges of the Royal Horticultural Society in London just decided. Indeed, it has been somewhat foreshadowed; Eugene Verdier in his last Fall Trade Circular of new Roses, expresses his opinion, already, that it was a deception. Having grown the Fortune's double yellow Rose now for about eighteen years, I append below a description for the benefit of your readers, who are unacquainted with it.

Introduced by Robert Fortune from China twenty or more years ago, it attracted at first considerable attention by its rich yellow color, tinged with carmine (but not striped scarlet). Flowers large, semi-double, of strong climbing proclivities, but only an annual bloomer, and not very hardy in the Middle or Northern States. It is now but rarely demanded.

EDITORIAL NOTES.

CLEMATIS CALYCINA.—One of the most exquisite plants for wreaths or for adorning dresses is, undoubtedly, Clematis calycina. Its tufts of

bronzy, deeply divided leaves, from the centre of which hangs the whitish bell-like flowers, render it one of the most elegant plants we know of. It is not often that we see it "in full bloom," but this Winter with us it has been exceptionally full of bloom. Talking of wreaths reminds us of the grotesque abominations which one sees now and then on the heads of ladies or in the shop-windows of fashionable milliners and artificial flower-makers. In a window of one of the most celebrated of these establishments at the West-end we lately saw wreaths of Daffodils and of Polyanthus Narcissus, not mixed in with, but bearing pinnate leaves like those of Mahonia. After this we were not surprised to see large yellow Calceolarias treated as climbing plants; while Hops of bright gamboge and of clear magenta, excited no particular astonishment. In these days, when knowledge and taste are supposed to be so much more widely diffused than heretofore, it seems a pity that artificial florists either do not copy Nature more accurately, or ceasing to copy servilely, profit by her teachings, and adapt in a suitable and becoming manner the means to the end required. Pure conventionalism is far better than hideous or grotesque caricatures.—*Gar. Chron.*

Improving old Favorites.—In the anxiety to get new flowers, some florists do not forget the improvement of old ones. Mr. Cannell, of London, has taken the old French Marigold, Sweet William and the Polyanthus, and has made real beauties out of very common things.

Roof Gardens.—We have a pleasant recollection of roof gardens in Louisville of some years standing, and have often wondered why there was not more effort by city people in that direction. They are not only a source of pleasure, but would be a source of health.

Dr. Richardson in a health lecture in London last Summer puts this last point strongly. He says: At the top of the house I would have, on a firm, almost level asphalted roof, a brick and glass-covered garden, equal in extent to the area of the house. Into this the stair-shaft would finally enter, and any emanations from the lower part of the house would be eaten up wholesomely by the living vegetation. Heated readily from the kitchen, which should be on the third floor, this garden might have at all times a Summer temperature, in which children could engage in luxurious and healthful play; ladies would find occupation in it, in the cultivation of flowers and evergreens, and in it the sterner sex might spend those hours which are now found so unspeakably dull, owing to the monotony of one or two rooms. In this garden, with the pleasant, the natural, and the beautiful, health would be trained, and happiness, her dependent sister, nourished.

NEW OR RARE PLANTS.

Cuphea Rillfieldiana.—This resembles in general style and habit of growth C. platycentra, with small bright glossy green leaves, and a profusion of trumpet-shaped flowers an inch in length, the upper half of the tube of which is bright crimson, the under half white, and the end violet purple. This is one of the best pot plants for house culture, being almost always in bloom, and very bright and attractive, but the peculiar markings of the flower in this variety attract special attention.—*Henderson.*

Lygodium scandens.—Japanese Climbing Fern. A Climbing Fern from the East Indies. A most graceful plant, growing from one to fifty feet, as desired. Quite as easy of culture as the Smilax, and will no doubt be used as extensively for similar uses in decorating; although climbing, when supported by strings or wires, it can be used, with equal advantage, as a drooping plant, for baskets or vases; as a house plant for parlor culture nothing is more easy.—*Henderson.*

Sarracenia Mooreana.—A hybrid plant of no ordinary interest, and exhibited for the first time at the International Exhibition held at Florence in May, 1874, by Dr. Moore, the Director of the Botanic Garden at Glasnevin, by whom it was raised.

In a paper read before the Congress held during the Exhibition, Dr. Moore thus referred to this hybrid: "It is supposed to be the first hybrid Sarracenia which has ever yet flowered. It is the offspring of S. flava fertilized with pollen of S. Drummondi. The plant is as nearly intermediate with these two noble species of this curious genus as it well can be; and no hybrid which has hitherto come under my notice proves more decidedly the marked influence of the pollen of one plant applied to the stigma of another than this does. It makes its winter growth of pitchers similarly as S. Drummondi,

and they are nearly as well marked with purple and white colors, but they decay much sooner in Spring, and in this way they resemble those of the female parent, S. flava."—*Veitch.*

A Purple-leaved Ivy.—During the last few years I have been cultivating and increasing a beautiful purple-leaved Ivy, which I discovered a few years ago, and which is considered by those who have seen it, to be the best of all the Ivies. Imagine a wall all through the dreary Winter covered with large leathery leaves of a deep bronze or dark purple color, and you will be able to form some idea of the appearance of this Ivy. I should be pleased to show it to any one who may feel interested in such matters; all I wish is that the plant was somewhere where it would be more appreciated, for it is growing on an old brick wall ill adapted for showing off its rich color to advantage; but if grown on a light stone terrace wall or a similar position, or in light-colored vases, or even as an edging near white or light gravel, it would form one of the most attractive creepers known.—*T. Williams, Ormskirk, in Garden.*

Scented Geranium, "Mrs. Taylor."—Scarlet flowered Rose. A distinct variety of the scented Geranium, with a strong rose fragrance, and large, deep scarlet flowers of the Hybrid Perpetual class. Combining, as it does, free flowering qualities with fragrant foliage, it is very useful for Summer cut flowers, and as a pot plant for Winter cannot be surpassed.—*Henderson.*

Antigonon leptopus.—A beautiful plant, of climbing habit, with numerous racemes of rose-colored flowers, showing a still richer tint in the centre. The profusion of its bloom is such as to give the resemblance of Roses at a distance; hence one of the Mexican name is "*Rosa de Montana,*" or Mountain Rose. Described by its discoverer as the most beautiful climber he had ever beheld.—*John Saul.*

Tabernamontana Camassa.—Growers of flowers for market should cultivate a house of this plant alone. A very desirable and newly introduced evergreen stove shrub of a neat compact dwarf habit, with medium small glossy bright green laurel-like leaves, and terminal axillary cymose racemes of double white flowers of Gardenia-like outline and fragrance which are produced on the point of every shoot. From Gardenia it differs in its easier growth, and in requiring a much less stimulating atmosphere to produce its bloom; the usual temperature of a hot-house with less humidity, will produce blooms more freely and longer in succession. The petals of the flowers are lighter and more elegantly arranged than the Gardenia, and not quite so large; small plants in 60 pots will produce flowers freely.—*John Saul.*

SCRAPS AND QUERIES.

Culture of the Calla Lily.—Miss H. R. B. (somewhere in Penna., but post-mark indistinct), asks whether the suckers or side plants on a Calla will injure the main plant, if plenty of pot room be allowed? It is best not to allow too many to grow. Sometimes this plant shows a disposition to throw up a great number of little sprouts. These are best taken off, leaving from four to six strong ones, according to the size of the pot; six would be enough for an eight-inch pot.

Job's Tears.—Miss B. writes: "I once had a very pretty little grass called "Job's Tears," but lost it, and have been anxious to get it again as it grew very well in my garden. But I cannot find it under this name in any garden book



I have. Can you recognize it by the enclosed sketch and give me its proper name?" [This is the Coix lachryma. It is often in catalogues under the name of Job's Tears. The seeds have an ovoid, long drawn out, tear-like form. It is hardly a "little" grass, however. It generally grows about two feet high, and is rather coarse in expression.—Ed. G. M.]

Heating Greenhouses by a Coal Stove.—We have an excellent paper by G. A. H., on hand on this very interesting topic, which will appear shortly.

Flowering of Ficus elastica.—A correspondent writes that he has a plant of Ficus elastica, which is making "abortive attempts to fruit." We believe this to be very rare.

Culture of the Antholyza.—Miss H. R. B. asks, what is the best way to manage this plant? It is one of the Cape bulbs, and they generally grow in what is our Winter. They do not like much heat, however; a cool greenhouse, or even a room window would bring them on very well. They are kept a little dry during Summer, giving them water when there are appearances of sprouting in Fall.

Fruit and Vegetable Gardening.

SEASONABLE HINTS.

Grapes coming into bearing should not be permitted to perfect large crops of fruit while young. It is excusable to fruit a bunch or so on a young vine, "just to test the kind," but no more should be permitted till the vine has age and strength. Vigorous growth, and great productiveness, are the antipodes of the vegetable world. Encourage as much foliage as possible on the vines, and aim to have as strong shoots at the base as at the top of the cane; this can be done by pinching out the points of the strong shoots after they have made a growth of five or six leaves. This will make the weak ones grow stronger. Young vines grow much faster over a twiggy branch, stuck in for support, than over a straight stick as a trellis, and generally do better every way. When extra fine bunches of grapes are desired, pinch back the shoots bearing it to about four or five leaves above the bunch. This should not be done indiscriminately with all the bunches. Too much pinching and stopping injures the production of good wood for next season. These hints are for amateurs, who have a few vines on trellises; for large vineyard culture, though the same principles hold good so far as they go, they will vary in their application.

Gooseberries should have the soil, and even the plants, if it were practicable, shaded a little. Dry air about them is one great cause of mildew, and hot ground is greater than all.

Currants are so easily grown as to require few hints for their management. If they throw up many suckers, take out a portion now, instead of waiting till Winter to cut them away. The Currant borer is a great pest, eating out the pith of the young shoots, and causing them to grow poorly, and bear but small fruit next year. Gummy "fly paper" is, we think, the best thing to catch them.

Blackberries are not ripe when they are black. Leave them on till they part readily from their stalks.

The directions and hints we gave last month are still applicable, especially those relating to disbudding and pinching back of strong shoots, checking the flow of sap through excessively luxuriant channels, and directing the flow through weaker ones, equalizing and striking a balance between all parts of the tree. As the weather becomes dryer, and the growth still continues, young and free-growing trees of choice varieties would be much benefited by occasional syringings from a powerful garden engine, which should be found in all gardens with any pretension to completeness and excellence. Besides the cleanliness so conducive to health this ablutory process achieves, the moist atmosphere and check to excessive evaporation that result from this practice, is one of the greatest safeguards against many bad diseases.

Grapes in cold vineries will now be of a size fit for thinning, In those cases where the bunches are intended to hang long on the vines, they should be thinned out more severely than those expected to be cut early. A close, compact bunch favors mildew and early decay.

Fine, rich color is always esteemed as one of the criterions whereby to judge of the excellence of a fruit. Sun-light is of first importance; but it is not generally known that this is injurious when in excess. In a dry atmosphere, with great sun-heat, where the evaporating process goes on faster than the secretive principle, what should become a rich rosy blush in a fruit is changed to a sickly yellow, and the rich jet black

of a grape becomes a foxy red. Some grape-growers of eminence, in view of these facts, shade their vineries during the coloring process; but others, instead, keep the atmosphere as close and moist as possible. The latter course detracts from the flavor of the fruit. The best plan is that which combines both practices.

In summer-pruning grapes, care must be taken that the leaves from the stopped laterals do not over-crowd or smother the larger leaves of the original cane, on which all your hopes of good sound wood for next season depend. All the use for the leaves on the laterals is to afford outlets for superabundant sap, which otherwise would cause the next season's fruiting buds to burst now. Always carefully guard the first leaves.

At the end of June some celery may be set out for early crops, though for the main crop a month later will be quite time enough. It was once customary to plant in trenches dug six or more inches below the surface; but the poverty of the soil usually at this depth more than decreases the balance of good points in its favor. Some of our best growers now plant entirely on the surface, and depend on drawing up the soil, or the employment of boards or other artificial methods of blanching.

Cabbage and Brocoli may still be set out for Fall crops, also requiring an abundance of manure to insure much success. Lettuce, where salads are in much request, may yet be sown. The Curled Indian is a favorite Summer kind; but the varieties of Cos, or Plain-leaved kinds, are good. They take more trouble, having to be tied up to blanch well. Many should not be sown at a time, as they soon run to seed in hot weather.

Beans produce enormous crops in deeply trenched soils, and are improved as much as any crop by surface manuring. We hope this method of fertilizing the soil will be extensively adopted for garden crops this season. Those who have not yet tried it will be surprised at the economy and beneficial results of the practice.

Peas for a Fall crop may be sown. It is, however, useless to try them, unless in a deeply-trenched soil, and one that is comparatively cool in the hottest weather overhead, or they will certainly mildew and prove worthless. In England, where the atmosphere is much more humid than ours, they nevertheless, have great difficulty in getting Fall peas to get through free from mildew; and to obviate these drying and mildewing producing influences, they often plant them in deep trenches, made as for celery, and are then much more successful with them.

Cucumbers for pickling may be sown this month, and endive for Fall salad set out. Parsley for Winter use may be sown now in boxes of rich soil, and set in a cool, shady place till it germinates.

Asparagus-beds should not be cut off after the stalks seem to come up weak, or there will be but a poor crop the next season, and the beds will "run out" in a few years.

COMMUNICATIONS.

FRUIT AT THE NORTH.

BY JAS. M. HAYES, DOVER, N. H.

The season of 1875 can be classed as one of the poorest in many respects for fruit north of the 43d parallel of latitude. Frost continued late in Spring, until May 18th, and in Autumn the first was September 11th; so with only 115 days without frost, much fruit failed to mature. The temperature during the whole Summer was low, only one day during the Summer (June 24) did the thermometer get above 90°. Thus it will be seen that the season in New Hampshire was unusually cold, and yet roots of all kinds were good. Corn ripened well, but alas for our grapes, the biting frosts ruined them. The whole season, from the first, the vines gave abundant promise of a rich harvest in Autumn, and we New Hampshire fruit growers felt encouraged, thinking that for one year at least, our grapes would be a paying crop, but an "Arctic wave" swept over us, and Jack Frost in a single night upset our calculations. Not even those early varieties which come to us with such glowing recommendations of earliness "combined with hardiness and productiveness, as just the grape anywhere south of Canada for the vineyardist," ripened a single grape. None of those far-famed varieties from Iowa Island seemed to do much better than the old and tried kinds, Hartford, Delaware and Concord. Neither did the "American raisin grape,"—the Walter—mature. Thus far, after ten years' experience, I have found nothing better than the Concord, and if called to vote upon the best variety for general cultivation, I should unhesitatingly vote with the "*Tribune* philosopher," for the Concord, as the

grape for the million. It must be admitted that this grape is not so early as some others, but its hardiness and vigorous habit, its large bunch and berry have rendered it a general favorite. What we need at the North, is a grape as early as the Hartford, as good as the Delaware, and as vigorous and productive as the Concord. When such a grape appears, then will northern fruit-growers be ready to invest largely in it for profit, and then our tables and the market will be supplied with better fruit. We are anxiously waiting for the appearance of such a grape, and we expect it will some day make its advent, for great has been the improvement from the native grape to the delicious Delaware; and why may we not expect still greater improvement, and that in time a grape will be produced that will ripen at the North even in such frosty and unfavorable seasons as 1875.

APRICOTS IN BOSTON.

BY J. C., CHELSEA, MASS.

In an Editorial in a late number of the *Monthly*, it was stated on the authority of E. S. Rand, Esq., that among other fruits in our markets, there were Apricots in abundance last season. I am safe in saying that few of New England growth has been shown on the tables of the Mass. Hort. Society, except by myself two years ago—the mistake being that the great abundance was from California, and good for little when they arrived here. We cannot brag of large quantities of that fine fruit here.

THE BIRKETT PEAR.

BY W.

This variety comes from a little scion produced from an unknown source by the late John Birkett, and grafted in an apple root the Spring of 1826, in Peoria, Ill. The original tree still lives at the old Birkett homestead, and has borne immense quantities of pears during the last forty years, never missing a season.

It has never shown the least indication of blights of any kind, and has withstood all the severe Winters since the country was settled. Young trees of it, one to three years old, withstood the severe Winter of 1872 and 1873 perfectly, or as well as the hardiest of the Siberian Crabs, and all the old trees bore a fine crop of fruit the succeeding Summer. There are two trees, propagated from the old tree, growing near Washington, Tazewell Co., Ill., now forty years old. The largest of these two trees, belonging to Wm. Birkett, is one of the finest specimens of tree growth in the West. Mr. Birkett says of it:—

"My tree of the Birkett Pear has always been free from blight, and has never been injured by cold. It is six feet and three inches in circumference two feet from the ground, thirty-nine feet in height, with forty feet spread of branches. The fruit is of medium size, of fair quality, and excellent for baking, canning, and preserving. My books show that I have sold from this one tree, in Peoria market, along with my dairy products, at wholesale during the last eight years, an average of $45 per year, besides what was used at home. I have no Birkett trees for sale, and have sold all my scions to the Lacon Nursery for the next five years.

"WILLIAM BIRKETT."

Mr. Birkett has a thorough personal knowledge of the three original trees, and so have we, and we have no hesitancy in recommending it to the people of the Northwest as a pear that will grow in every reasonable situation, remain healthy, and bear pears. It will prove of the very greatest value for top-grafting some of our hardiest, healthiest and choicest pears upon. Give the pear one more trial by planting this "iron-clad" variety. It will also be found of great value to plant for purposes that shade and ornamental trees are planted for. Its great vigor and complete health, even without taking into consideration its fruit, makes it one of the most valuable of trees, and at the end we have a timber of the most valuable qualities for many purposes.

EDITORIAL NOTES.

TRAINED FRUIT TREES.—In small gardens the training of fruit trees after the fashion so common in Europe, might surely be adopted with advantage. The espalier system, especially, is a good one for this purpose. The trees are kept about as high as an average man, and the branches led out horizontally on each side. The trees make capital "fences" to keep people from running across lawns or grass-plats, and, besides, protect the flower borders that may be in front of them.

The fruit from these trees is generally much

superior to the average of fruit from other trees. Mr. Boileau, of New York, had nice specimens of training on the Centennial grounds.

Illustrations of Fruit.—A few years ago there was quite a rage for illustrating fruits by outline drawings, or other forms of wood-cuts, but these "new fruits" became so numerous that when one wanted to illustrate a new grape, apple, strawberry or some other thing, a search among the old cuts would be sure to find just the old fellow required to fill the new place.

To such an extent has this been carried that few intelligent editors care to waste space by these sort of illustrations—at least we do not.

Sometimes the editors do not always hit the right cut in the "adaptations" of the old to the new; of this we saw a laughable instance in a cotemporary recently. We were struck with the appearance of our old friend the cut of the "Brown's Wonder" strawberry, which we gave to show how fearfully exaggerated a thing could be made. "It is not possible," thought we, "that this fraud is being pushed again." But under the plate we read "Wilson's Albany seedling strawberry!"

Packing Pears.—The pear is difficult of transportation. It rots easily by the slightest bruise. This has been against its success as a market fruit. But there are, no doubt, some pears as well as some apples, that will transport better than others, and it is worth while to look them up.

It was at one time thought that apples would not travel well, but it was found that by *tightly pressing* them in barrels they did well. It is not so much a bruise that hurts an apple, but the air that operates on the bruised parts. If the parts pressed *continue pressed* no damage is done. Perhaps when this is generally understood, there will be no more difficulty in transporting pears than there now is with apples or grapes.

Long Continuous Bearing.—The *Country Gentleman* tells us that near Niagara, Mr. Burdett has an orchard (apple we suppose) of 2,000 trees that has been in continuous bearing for twenty years, and that the sales have been as much as $6,000 in a single season.

A White Dewberry is among the horticulturists of Texas; white Blackberries of the upright or "high bush" kind, have frequently appeared and have been named and distributed, but have generally soon disappeared. The flavor is generally more agreeable in these whites than in the dark kinds, but the faults have been that the whites were smaller fruited, shy bearers and more liable to winter kill. The Dewberry has not been yet brought under culture, unless we guess that the Wilson's Early is from this species, but it is a good one to look after.

Gary's "Hold on" Peach.—This very late variety seems to be gaining in popularity in Maryland.

A Horse-power Vineyard.—Mr. Smythe of Burlington N. J., has a vineyard of two thousand vines of the Concord grape. He buys old horses, cuts them up, and gives a chunk to each vine; and it is said the product is both prodigious and profitable.

Japan Persimmon.—Mr. Henry Loomis of San Francisco, tells us that this is found to thrive remarkably well in California and is destined to become one of their standard fruits. It has already grown large enough to fruit in some few places in the State.

Fertilizing Figs in Smyrna.—A correspondent writes to the *Pacific Rural Press*:—"About the end of July the first figs come to maturity. The fig harvest lasts about six weeks. When the fig is ripe, it will of its own accord fall from the tree, only partly cured. Women and children are employed to pick up the fruit into small baskets, to be conveyed to a place in the garden well exposed to the sun, where they are spread on a bed of dry grass or matting, singly— that is to say, not one on top of another—and are turned every day, so as to get every side of the fig exposed to the sun. After a few days exposure to the sun, those figs which are considered sufficiently dry are selected from the mass and divided into first, second and third quality. Care must be taken not to dry them too much. When properly cured, the skin ought to feel dry, but the inside soft. Practice alone can teach to what extent the drying ought to take place. The grower then sends the figs to Smyrna, where they are re-sorted and packed for shipment.

"The male fruit about the middle of June contains a large number of small flies, and is thrown on the female trees; these flies then get distributed over the fruit and convey the necessary amount of pollen. The system is as follows:

"When the female fig (first crop) is about the size of a hazel nut, five or six of the male figs

are strung on to a piece of string, and one or two of these bunches are thrown upon the female tree, according to its size and amount of fruit. Repeat this operation when the second crop is about the same size. As the tree grows larger year by year, increase the number of strings; but never put more than six strings (say about 30 male figs) over the largest tree at one time. These strings are put on the tree about one hour before sunrise, and care must be taken that the weather is fine and no wind blowing. I may mention that if the male fig is not applied the crop will not set, but the fruit will fall off; and if too many are applied the fruit will likewise fall, or become very small or inferior."

Conover's Colossal Asparagus.—The London *Gardener's Magazine* complains that in England they have found this the same as ordinary Asparagus, and would like to know what any one has found "to justify the character Americans have given it." We do not know why "Americans" should be thus boldly challenged. Certainly the *Gardener's Monthly* long ago showed our "English" friends that there could be no separate variety of Asparagus capable of reproducing itself, because the plant is dicœcious, or with separate sexes on distinct plants. Mr. Conover's growth was, however, so superior that it was quite pardonable in those who saw it to suppose it was a distinct kind, for at that time the discovery of the dicœcious character of the Asparagus in this country had not been made.

Tomatoes.—Much as our readers know of the general use of Tomatoes, we doubt whether they have any idea of how immense the culture is. Every one who has a garden, no matter how small, has tomatoes, though he may have nothing else, and yet thousands of acres are covered for market purposes. A Southern paper tells us of a Tomato Growing Company, in King William's Co., Virginia, that will plant this Spring seven hundred acres. The seeds at the time of writing were sprouting under six hundred hot-bed sashes. The yield is about a peck to the hill. Droves of turkeys keep the plants clear of the tobacco worm, which in Virginia is a great pest to the Tomato.

To Cook Jerusalem Artichokes.— So much has appeared of late about the native country and general history of the Jerusalem Artichoke, that it will be timely to supplement this by more substantial remarks about them. Unless nicely cooked the Artichoke is poor stuff. By high culinary art they are not altogether despicable. The *Gardener's Magazine* says that they can be rendered fair eating by attention to the following details:—"The waste occasioned in the preparation of Jerusalem Artichokes for cooking ought not to trouble anybody, for the poultry will eat up every scrap, and it is really a treat for the poultry yard when we send out our pan-full of parings. This point seems to be worth mentioning, because many a one experiences a pang at the immense waste of the roots that inevitably result from their ungainly forms. But as the poultry will eat up every scrap, the waste is kept in the family, and there is nothing lost. Amongst the various modes of cooking these wholesome and nutritious roots, I much prefer the one I shall describe first, for it is extremely simple, decidedly elegant, and the result is a delicious dish that everybody can eat, and that agrees perfectly with the most delicate stomach.

"*Artichokes Fried.*—Prepare by washing and paring in the usual way, taking care not to make them ready until they are to be cooked, as they should not, for frying, be put into water. Cut into very thin slices, and put them in a pan with plenty of boiling fat or butter, and shake and turn them about frequently. When fried a nice brown, heap them on a hot dish, with a very slight sprinkling of salt.

"*Artichokes Stewed.*—Prepare by washing and paring in the usual way, and shape the roots like a peg top or pear, with the broad end cut flat off, and as each is made ready put it into cold milk in a porcelain-lined saucepan. There should be just enough milk to cover them, and a dozen roots will make a nice dish. Stew them in the milk slowly, adding a little water if needful as the milk evaporates, but taking care to cook them in a small quantity of liquid. When nearly tender draw them from the fire, and add a teaspoonful of minced shallots, a little nutmeg and an ounce of butter; and let them simmer again for about five minutes. Then take them out, put them in a hot dish, and cover with a cloth. To a little cold milk add a dessert spoonful of flour, and beat it smooth. Strain the liquor in which the roots were cooked and add to it the milk and flour, and an ounce of butter. Boil it up, carefully straining the while, and pour over the Artichokes. Put round the dish a border of mashed potatoes, or a few nicely cooked Brussles sprouts of a bright green color."

FORESTRY.

COMMUNICATIONS.

THE EUCALYPTUS IN CALIFORNIA.

BY D.

In several numbers of the *Monthly* I have noticed articles relating to the Eucalyptus. In some parts of California this tree grows well; there are some within twenty miles of here thirty to forty feet high. I have some from seed planted last May, about four feet high. I do not like them. There are many finer trees natives of our State. The railroad intends to set out 800,000 of them along the road, from Sacramento down. They have procured 40,000, and intend to get others as soon as possible.

I think it a poor investment. Our native walnut makes a magnificent shade tree. We have six in front of our dwelling that are as fine as any one could desire. They are hardier than the English walnut, and are very seldom injured. They grow readily from seed. The leaves are not much over one-quarter as large as the English; are of a darker green color, and more thickly set on the tree; in fact, they are so thick the sun can hardly stray through them. Would you like a few seeds of them?

TIMBER NOTES FROM CALIFORNIA.

BY J. M. HUTCHINGS.

The Pinus Lambertiana, or sugar pine, is the best pine we have for finishing purposes, and frequently attains a diameter of from 8 to 10 feet, and an altitude of 250 feet. It is often 120 feet to the first limb, and "straight as an arrow." The Pinus ponderosa is more durable exposed, and has a much greater strength for heavy timbers, floors, joists, &c. The wood of Red Wood (Sequoia sempervirens) is in every respect like the wood of the Big Tree (Sequoia gigantea), and is second only in size to the latter. Both are invaluable for lumber, and exceedingly durable. As an instance of the latter quality, I will mention one example I found in the Frezno Grove. A tree about twenty-six feet in diameter lay prostrate; another of the same species had grown up beside it, but as it was unable to push the prostrate monarch out of its way, *it had grown over it six feet and eight inches;* and although it had probably been there hundreds of years, was quite sound when I saw its thrifty young scion growing over it. The timber in the "mission" buildings of California is mostly Red Wood; yet, although nearly one hundred years have rolled away since they were built, the timber is perfectly sound. Then, in specific gravity, it is lightest of all. Its value, however, would be mainly for finishing purposes, as the yellow pine would bear a tension of three to one where strength was needed. It splits easily either way of the grain. Owing to this latter, and other qualities, it has become almost indispensable for fence posts and railroad ties, &c. The sugar pine is easily riven, and it forms the staple timber for "stakes" and "shingles." These trees do not command the attention their invaluable qualities would invite and justify.

EDITORIAL NOTES.

TAR, ROSIN AND TURPENTINE.—These still continue among the leading exports from Wilmington, North Carolina. Of pine tar, no less than 18,201 barrels more were shipped than the year before. The price there is about $1.60 per barrel. Of turpentine there was the enormous increase of 56,793 barrels—33 per cent. over the previous year; price $2.25 per barrel. In rosin there has been a decrease of 17,829 barrels. The ruling price is $1.75 per barrel. The Wilmington *Review*, from which we take these figures, adds:

"There are vast forests of virgin pine in this section of the State, untouched. They are far from a market and hence are not worked, having never been touched, either for turpentine or timber. These forests are to be found at the intersection of the three counties of Pender, Duplin and Onslow, and this is the country that the people of Wilmington are interested in opening up now to a market."

Forests of Massachusetts.—New forests are said to be growing up in the western part of Massachusetts faster than the old ones are cut off. Especially in the hill towns is this the case. Many a locality that was impoverished as farm land some twenty and thirty years ago, is now covered with a vigorous growth of young forests, the rapid increase in the population of the outlying agricultural districts having rendered such a thing inevitable.—*Cultivator.*

Trees for Colorado.—The *Greeley Tribune*, after recounting a long list of trees that have been tried, and so far failed in the Colony, says the Cottonwood, Box Elder, and Silver Maple do admirably there. Evergreens have so far proved failures.

Large Chestnut Trees.—These often grow to an immense size, and we should like to know just how large the largest are. Mr. D. Wyatt Aiken tells us of some fine ones in North Carolina, but we think there may be larger ones than even these. He says of his:—"There have recently been discovered some trees in North Carolina that are 'no sardines.' In surveying the route of the Spartanburg and Asheville Railroad, the engineers encountered some chestnuts that seemed to nestle their burs in the upper firmament. A contractor had to eradicate one of these, as it stood directly in the way of the track of the Road, and it measured ten feet three inches across the stump, and was solid to the centre."

The Ash as A Timber Tree.—Prof. Sargent, who more than any other man deserves well of his country for the interest he is exciting in timber culture, contributes a paper on the Ash, to the April *Agriculturist*, showing how the tree may be made profitable within ten years from planting. The rows need not be more than four feet apart, with a view to thinning out the young plants, until only the right number are left to develope into large trees. The thinnings from an acre of White Ash, planted in this way, would, at present prices, sell for at least four hundred dollars for hoop-poles, while subsequent thinnings would be of still greater value; and these thinnings, it must be remembered, are made, not at the expense of the future plantation, but to benefit and improve it. The White Ash should be more generally employed as a roadside or avenue tree. Indeed, in view of its many qualifications, the Sugar Maple alone, among our native trees, surpasses it for this purpose. It is many years since the White Ash was first introduced into Europe, and the fine specimens which are occasionally met with, both in Great Britain and on the Continent, sufficiently prove that its general cultivation in Northern and Central Europe would make a valuable addition to the forest products of those countries.

The Eucalyptus in South Carolina.—Mr. Chisholm, of Beaufort, tells the *American Farmer*:—"I had one Eucalyptus globulus about 15 feet high, and quite a number of small ones in a box, all of which were killed by the late cold spell, while small orange trees in another box alongside were not at all hurt, which proves that the Eucalyptus globulus is more tender than the sweet orange. I have one tree of another variety of Eucalyptus, name unknown, which does not appear to be injured any more than to have all its leaves killed."

The Yellow or Short-leaved Pine.—Prof. Sargent says, in a recent paper, that this is the Pinus mitis, and this we believe is the accepted belief of the authorities. We have an idea, however, that all the Yellow Pine that comes to the Philadelphia market is from Pinus palustris. We are not sure of this, and should be glad of correct information from any botanist who may have personal experience in the "Yellow" Pine region. Pinus mitis was at one time very abundant in places where it is now nearly exterminated. We know of but one old tree, and the top of it is so flat and thick one can almost walk over it.

Wood Preservatives.—According to observations made on a railroad in Germany, the proportion of renewals was, with oak sleepers (not treated) after 12 years of service, 74·48 per cent.; with oak sleepers, treated with chloride of zinc, after 7 years, 3·29 per cent.; with oak sleepers, impregnated with creosote oil, after 6 years, 0·09 per cent.; with pine sleepers, impregnated with chloride of zinc, after 7 years of service, 4·46 per cent. The practice of this railroad, since the year 1870, has been to employ only oak for sleepers, which are impregnated either with chloride of zinc or with creosote oil.—*Scientific American.*

The Lumber Resources of Tulare, California.—There are in Tulare County some fifty or sixty townships of our unsurveyed public lands that lay within the pine belt. Not less than 400 square miles of these lands are covered by a heavy pine forest. It is a mountainous region, and abounds in unappropriated water power.

We know of one place where a mill could be located within eight miles of the valley, and be in the heart of a forest of a hundred square miles. A road on a grade of one foot to the rod would reach it within the distance named. Another large forest stands within five miles of a traveled road. At Dillon's mill, lumber has been delivered, during the last year, over a wooden railroad which has a grade of 1000 feet to the mile. The cars run down loaded, by their own weight, and are drawn back by a mule. Mr. Dillon has found that his system of brake will stop a car on a grade of five feet to the rod. A singular fact in his experience is, that a loaded car will mind the brakes when an empty one will slide with all wheels locked. This seems owing to the fact that the face of the wooden rail gives under a load. As to whether this plan of delivering lumber will prove as satisfactory as the V flume, time will determine; but, doubtless, either will prove greatly superior to the teaming system, and probably would suffice to stop the carriage of lumber through our valley.—*Visalia Iron Age.*

The Preservation of Timber.—Buried in the earth or exposed to the air, timber rapidly deteriorates, and undergoes the species of decomposition known as dry rot. This decomposition may be retarded by the application of a coat of paint to the timber exposed to the air, or by carbonizing the surface of that which is intended to be sunk in the ground.

During the last twenty years, several methods have been tried for making timber more durable, the principle of which consists in expelling the sap remaining in the ligneous fibres, in order to replace it by chemical solutions, such as sulphate of copper and creosote; but these processes, comparatively costly, and only partially successful, do not entirely accomplish their object. Starting from the fact that oak, chestnut, and certain American trees resist the action of air and damp, better than others, and that they owe this property to the tannin which they contain, a chemist proposes to tan the timber by substituting for the sulphate of copper and creosote a compound of tannic acid and iron. The object of injecting various substances into wood is to poison them, so that germs and microscopic growths may no longer live and propagate either on the surface or in the interior. Now tannin is one of the most active and certain destroyers of germs both vegetable and animal, which fact accounts for its preservative agency. Besides, it is to tannin that is due the almost indefinite preservation of leather. One peculiarity to be noticed in this process is, that timber treated with this compound of tannin and iron, that is to say a composition similar to ordinary writing ink, is turned black.

The process of injecting timber with tannate of protoxide of iron is due to M Hatzfeld; the Eastern Railway Company of France has experimented with it on some sleepers, and the Telegraphic Department on some posts.

M. Boucherie has denied in a note to the "Academie," the efficacy of this process, contending that the attempts already made to preserve timber from dry-rot by injecting it with iron salts have yielded only partially successful results, while sleepers treated by sulphate of copper have lasted twenty five years and more. Reply is made to these objections by quoting—not the experiments of the laboratory or the workshop, but those made by time itself. It is not a rare circumstance to encounter in earth of a ferruginous nature the trunks of very old oaks, blackened and very perfectly preserved; at Rouen, in 1830, some old oak paling was discovered as black as ebony, and dating back to the Middle Ages. Not very long ago, too, a Norman vessel built of oak was discovered in an almost perfect state of preservation in the neighborhood of an iron mine in Norway. It is more than probable that the preservation of the oak under these circumstances is due to the tannin contained in the wood; it follows, therefore, that by introducing a substance rich in tannin into timber that does not naturally possess it, its resistance to decay is increased.—*Journal of the Society of Arts.*

Selecting Timber.—In selecting timber, the surveyor's attention will naturally be given to an examination of the butt or root end, which should be close, solid, and sound; and if satisfied in this respect, the top should next be inspected, to see that it corresponds with the butt-end. Afterwards he will glance over the exposed sides in search of defects, carefully examining the knots, if any, to see that they are solid. He will, of course, avoid any piece that has either heart, cup, or star-shake, or sponginess near the pith at the butt, discolored wood at the top, splits along the sides, rind-gall, worm holes, or hollow or decayed knots. In dealing with spar-timber, he will select the straightest pieces; they should be free from all the defects before mentioned, upsets, *i. e.*, fibres

crippled by compression, large knots, and even those of moderate size if they are numerous or situate ring-like round the stick. Spar-timber should be straight-grained. As planks, deals, &c., depend for their usefulness upon both quality and manufacture, the surveyor will not only see that they are free from excess of sap, knots, shakes, and shelliness upon their sides, but also that they are evenly cut and fit for use of their thickness. Bright looking timber is better in quality than dull, and that which is smooth in the working, better than the rough or woolly-surfaced. The heart of trees having the most sap-wood is generally stronger and better in quality than the heart of trees of the same species that has little sap-wood.—*Laslett's Timber and Timber Trees.*

A Tree Planting Law in California.—By a law of California, approved March 30, 1868, the Board of Supervisors in each county are empowered to authorize owners of lands to plant and cultivate, along the public highways, shade and fruit trees, specifying the species to be planted, at what age, at what distance from each other and from the road-bed, and making the necessary rules for their protection, &c. Four years after the planting, upon receiving a duly certified statement of the number then in a thrifty condition, the Board is directed to pay to the cultivator $1 for each such tree. In October, 1872, the State Board of Agriculture called attention of County Supervisors to this Act, and urged them to do what is in their power to encourage a compliance with its provisions. They advised that the age be fixed from three to eight years from the seed, and the minimum distance between tree and tree at twelve feet, and recommended the planting of the following varieties: Black and honey Locusts; black, white and fruiting Mulberries; Osage Orange, native and eastern black Walnut; American Chestnut; American, European, and Cork-bark Elm; the different varieties of Maple; Tulip tree; Carolina, Lombardy, and silver-leaf Poplars; the different varieties of Ash; Apple, Pear, Plum, Cherry, Almond, and Fig trees; the Eucalyptus or Australian Blue and Red Gum tree; Monterey, Sugar, Yellow, Spruce, and Scotch Pines; Norway Spruce, Balsam fir, European Larch, Monterey and Italian Cypress, and California Laurel; and Redwood.

Japan Paper.—The *Scientific American* says:—"Japanese paper is usually made from the inner bark of the paper mulberry (Broussonetia papyrifera), which is grown and cultivated for the purpose. The bark of the Passerina Gampi, and of the Edgeworthia papyrifera, are also said to be used.

"Japanese paper is always made by hand, and is therefore of a necessity made in small sheets; the more common size known as *kanshi*, being about nine and a half by twelve and a half inches, though both larger and smaller sizes are used to a limited extent."

The Timber Line in the various Mountains.—In the Himalayas, trees grow up to a height of 11,800 feet, and there are often forests just below this line. In the Andes the growth of trees ends at 12,130 feet; in the Alps it ends on an average at 6,400 feet, but it is stated that specimens of trees are found above 7,000 feet, but the pasture grounds in Thibet are known to extend over an elevation of from 15,000 to 16,350 feet.

Natural History and Science.

COMMUNICATIONS.

TUMBLE WEED.

BY D. B. WIER, LACON, MARSHALL CO., ILL.

I have to thank you for the only real good hearty laugh I have had in a long time. Having read the *Gardener's Monthly* from beginning to end this evening (I devour in one evening what it takes you a long, weary month to get up), the next to the last paragraph upset me completely. Being a native of Illinois, I can appreciate both Tumble Bugs and Tumble Weeds, and we certainly would not have to introduce the former to destroy the latter, as we have both bad already, though the "tumble weed" is not near so common in this neighborhood as

formerly. It—the weed—appears to be from its general characteristics (I have not studied it) one of the Chenopodiaceæ, probably Cycloloma platyphyllum. It affects rich, clean soil, especially early broken prairie sod. In growth it is very branching, and in Autumn it becomes the whole plant, completely globular, when its root rots off, and the Autumn wind sets it to "tumbling" and away it goes across the prairie, scattering its seeds as it goes. It travels onward, literally, with the speed of the wind, until it lodges against some obstruction, where it frettingly remains until the wind changes, when away it goes where the winds listeth. It is a very curious sight to see a high fence on the prairies with tens of thousands of these weeds banked up on the south side of it, struck by a sudden gust of wind from the north, when away they go over the level field like a drove of deer or wolves, as they are often two and a half feet in diameter, they can be seen a long distance. As a weed, we never considered them troublesome, but they are exceedingly objectionable to skittish horses, when they are in motion, and many a bad runaway has been caused by the industrious "tumble weed."

But here, I have been writing about what I know as *the* tumble weed; how do I know that your other Illinois correspondent means the same thing or not? He may have tumbled to this name for an entirely different weed. Some years ago, while riding with five intelligent gentlemen from different parts of this State, we were talking of this common name business. Some of them thought that there was no need of technical names. We halted, and each was requested to give the name of one of our most common weeds, as known in his neighborhood, and every one gave different names, while it is known here under three different names.

Another thing in this connection. Not one in fifty, and probably not one in a hundred, of our plants in the West have any common English name at all; but the few that have been loosely named have been, as a rule, given very good descriptive names. With many thanks for the good, old-fashioned laugh, I am yours truly.

[We are very much obliged to Mr. Wier for the information, all new to us. We did not know the Cycloloma was so abundant in Illinois, or that it had such rolling habits. The name is characteristic, and whether there are others with the name or not, it will be well to retain it for this.—Ed. G. M.]

FERTILIZATION OF CLOVER BLOSSOMS.

BY ROBERT DOUGLAS, WAUKEGAN, ILL.

"In the *Monthly* for March, page 94, is an article entitled 'Bees and Clover,' which is likely to give a wrong impression. The writer quotes Mr. Darwin as saying, that the failure of red clover in England the past season is owing to the scarcity of bees. Had the writer signed the article 'Bumble Bee' instead of 'Busy Bee,' it would explain itself. Mr. Darwin must have meant the humble bee, for the honey bee does not feed on red clover, and for the same reason that the fox in the fable did not feed on the grapes—he could not reach them—neither can the honey bee reach the sweets in the red clover; while the bumble bee feeds freely on that plant. There are so few of them either in England or in this country, that it does not seem probable that they would have much effect on large fields of red clover. The partial failure of the seed crop is no doubt very often caused by cold drenching rains at the time the plants are in blossom."

[Mr. Douglas is no doubt correct that when failure to produce seed in the red clover occurs, it is from some defect in the plant's nutritive powers, as influenced by climatal or other circumstances. The first crop of clover rarely seeds in these parts, but last year being warmer and dryer than usual, the first crop had seeds in as great abundance as any second crop ever had.

The trouble in all these questions is that people do not always stop to weigh the value of language. For instance, there is some discussion just now, in regard to the value of blue glass. General Pleasanton believes that blue glass gives great vital power, and to prove, gives in the language of a contemporary, the following experiment:—"On the 3d of November, A. D., 1869, he imprisoned three sows and a barrow pig, all weighing 203 lbs., in a common sty; and on the same day, three other sows and a barrow pig, all weighing 167½ lbs., in a blue glass sty. On the 4th day of March, 1870, the animals were weighed, and it was found that the common sty pigs weighed 537 lbs., the blue glass pigs 522½ lbs. Allowing for the original difference in weight, this showed a gain for the blue glass pigs of 21 lbs., or 5½ lbs. each pig, in four months' time. From these and other comparisons, the General infers that 'it seems obvious that the influence of the violet-colored glass was much marked.' He, however, states that the barrow pig in the common pen increased 151 lbs., while the barrow pig

in the blue glass pen only increased 124½ lbs. Here is a gain of 26½ lbs. in a single animal in a common sty over a single animal confined in a blue glass sty. The General explains this by saying that the common sty pig was a strong fellow who stole more food from his companions, than well-behaved swine are expected to take."

Now if we substitute Petunias and Morning Glories for pigs, and cross-fertilization for blue glass, and turn to Mr. Darwin's recent work, the two read very much alike. The cross-fertilized grew a few inches more and weighed heavier in the same time. But the critics just now are asking General Pleasanton what fatness and weight have to do with vital power. The fat man and the fat pigs will get sick and die as easily as the lean one; and the medium sized plant will work its way through the world as well as the over-grown one.

The facts which our friends bring up are all interesting enough, and whether they be Mr. Darwin's on fertilization, or General Pleasanton's on blue-glassed pigs, they are all worth a good deal. It is only that we should be careful how we apply the facts, for we are so liable to be deceived by the imperfect use of language.—Ed. G. M.]

SCIENTIFIC THEORIES.

BY N. F. F.

It is with a great deal of satisfaction one notes the growing disposition of our scientists to investigate things closely, and to trace out the why they *are* thus and so, and in this pursuit go over again and again the ground of theories, though advanced by very distinguished men.

"Nature abhors self-fertilization," as advanced by some, is opposed to the experience of every plant grower who takes delight in observation; but on the other side, to say that fertilizing plants with their own pollen which do not naturally fertilize themselves, is equal for re-production to cross-fertilization, would be an error also. As to "natural selection," is it not absolutely essential to the preservation of a species, that the strongest should survive? But can a higher order of life result from natural selection? Could it be so, it would be subversive of order, the essence of confusion. Does nature propagate and preserve sports, bud variations, &c? Is there any well established instance of a true vegetable hybrid? Is it not extremely doubtful whether a true hybrid exists in the whole vegetable world, except as the result of man's interference? Apart from the controlling power of man, how long would any hybrid continue in existence? It would of course be absurd to seek proof that the great First Cause could not evolve man from an atom, just as readily as create man as we know him. Admitting evolution to have been the way in which man came into existence, what cause, good or otherwise, can be served by making the offspring of the most exalted creature on earth, so utterly helpless for so long a time after birth, over and above that of every other species of animal; and this too, no matter whether savage or civil, crude or refined, all of the genus homo must pass this state of utter helplessness.

The writer has no wish to cavil at the result of scientific research, but unless scientists can give us—the great unlearned—something more solid than they have yet done in this connection, they must pardon us for adhering to the plain assertion of Holy Writ, "male and female created He them."

"Has science in her lofty pride,
Some better, holier truth supplied?"

ON SELF-FERTILIZATION AND CROSS-FERTILIZATION OF FLOWERS.

BY THOMAS MEEHAN, GERMANTOWN, PHILA.

(Concluded from page 150)

This brings us to the question of dichogamy as an agent in this question. Much stress is laid on the fact that in many flowers the pistil is mature before or after the stamens; and this is interpreted as an especial arrangement for cross-fertilization. I pointed out, last year, that this difference in time varied with the season in many species. But the difference is striking in some closely allied species. Barbarea præcox and B. vulgaris, two cruciferous plants, are so nearly related that the difference can scarcely be defined. The former, however, has its pistil of about equal length with the stamens; all included in the petals. The stigma certainly receives own pollen simultaneously with the expansion of the petals. But in B. vulgaris the pistil protrudes beyond the closed petals, and is in perfect condition to be fertilized by extraneous pollen before it can be served by its own. But both species make their way equally well through the world. I think no better illustration could be offered of the fact that a

dichogamous plant has no advantage in the struggle for life. This fact may, however, be illustrated in various ways. Supposing the Iris could not self-fertilize, its next of kin Sisyrinchium is certainly a self-fertilizer, and who will say that it has not made its way proudly! Iris Virginica is comparatively local; but any student can get a specimen of Sisyrinchium Bermudianum on a few hours notice. You can find flowers which seem to forbid self-fertilization, it is true; but let us not close our eyes to those so constructed as to render insect aid impossible. There are some scrophulariaceous plants which have the pistil arranged above the stamens, so as to seem placed there in order that a visiting insect may rub its pollen covered back against the pistil on entering; but many Pentstemons (P. grandiflorus, P. cobæa), incline the pistil downwards, impossible for any such insect-fertilization, yet every flower perfects seeds. Browallia (B. elata) has a hairy cap over the stamens, and an insect would only aid in self-fertilization. But when Browallia is not visited by insects it yet seeds abundantly; and, it might be argued, because it has no fragrance. But there are some Garden Verbenas which have fragrance as well as color. No insect visits them on my grounds, as far as I can find, but both kinds seed equally well.

In fact, this idea that color and fragrance are necessary to attract insects, and are given to plants for that purpose, does not accord with the fact that flowers with neither, are thronged with insect patrons. But I have taken especial pains to note Rubus occidentalis, our native Black Cap Raspberry. It has not the faintest trace of odor. Its small, greenish white petals are so inconspicuous that it might as well be apetalous. But nothing can exceed the fondness of the honey bee for it. They abound in my vicinity; and from sun-rise till far into the twilight of evening, the honey bee crowds on them. They neglect every flower, even white clover, for them as long as they last. Surely, there should be a necessity for insect-fertilization in cases where insects are so assiduous! I have had this point suggested to me. Will it not surprise you, my friends, when I tell you that a gauze bag thrown over a cluster of flowers, yet resulted in a perfect fruit to every blossom, as also had all the neglected clover flowers as well.

As to clover flowers, I will refer you to what I said of it last year. Since then, so great is the faith in the necessity for insect-fertilization that humble bees have been sent from England to New Zealand, to help the clover along. Since last season, I have discovered that our humble bees do not enter the mouth of the Red Clover, care nothing for the elaborate arrangements for cross-fertilization, but slit the tube and get at the honey from the outside! And yet the clover seeds abundantly. So far as I could see, every flower in the field where I saw the bees behaving so outrageously, bore its seed. Many flowers are served in this way, and unless one looks closely he may be deceived. In the Persian Lilac, if we follow the course of our friends of the insect-fertilization school, we see the stamens arranged above the pistil, and as the pollen bursts simultaneously with the opening of the corolla, it ought to fall on the pistil, and the entrance of an insect would only aid this self-fertilization. But, with us, it never yields a solitary seed, and we may be asked to "behold the results of self-pollenization!" But we see exactly the same arrangement in the common Lilac; and that seeds abundantly. In both cases the humble bee slits the tube, and the honey bee follows in the slits made by its stronger friends, or else makes slits for itself—a point I was unable, positively, to determine. Indeed one of the points I wish to insist on most strongly is, that the facts in the question have been but imperfectly observed, and then erroneously construed, and of this I will offer but one more illustration. It relates to dimorphous flowers, those with the pistils long in some flowers, and short in others, as in Epigæa, Mitchella, Houstonia and others. When we look at the allies of these plants, we notice that this behaviour is exceptional. It may be assumed that they have wandered from a condition, when the separate sexual organs were nearer to a perfectly hermaphrodite condition, and it *is* assumed that this wandering is in order to derive some benefit from cross-fertilization, through insect agency. I have endeavoured to test this assumption in Houstonia cœrulea. I selected a number of plants of both forms, and marked them when in flower. In some clusters aggregating about fifty flowers of the short styled plants, and which, I have no doubt, were self-fertilized, forty-two perfected seed. Of fifty with long styles, and which would necessarily have more difficulty of availing themselves of own pollen, only five matured seed. Thus we see that the self-fertilizer has at least the advantage of numbers, and in a battle for life, or for any purpose, that is surely an advantage of no mean im

portance. I believe I have shown that the facts are not wholly as represented, and that the facts, even when they may exist as represented, do not produce results according to the deductions drawn from them.

Let me now show the danger of attempts to read the purposes of nature from her direct acts. If we examine swamp vegetation, we find Magnolias, Willows, White Cedars, Red Maples, Cypresses and numerous others growing therein. We at once conclude that they grow there because these trees prefer the wet to the dryer land. But a wider acquaintance with trees will show that all of them do better when, as we often find them, growing in dryer places. A suspicion then arises that there is something wrong with our reasoning, and we find at last that nature has a deeper purpose than merely an individual regard for these trees. Their seeds will only grow in wet soil; and of necessity, and not for individual benefit have these trees to remain there. Again I think there is nothing more certain than that effects will continue long after the causes which produced them have ceased to exist; so that actions which you see, may be associated with degradation, instead of evolution; may be the last flickering of a dying light, and not an Aurora indicating the birth of a new day. In the present question, our reason will tell us that the phenomena we see may bear this interpretation as well as those given to them by our friends.

In Europe, for instance, the common Strawberry is almost universally hermaphrodite; but in this country the tendency to dicecism is well-known. We know also that those parts of the world in which dicœcism prevails is not as favorable to the existence of the Strawberry as the other, and we may safely conclude that dicœcism —a form of dimorphism—has no relation to any advantage to be derived through the sexes; but is an actual result of degrading conditions.

Then, physiologically, what good can result? It is asserted by those who differ from me that probably most of the large order of composites are cross-fertilized; the flower in one head receiving the pollen of another flower in the same head, by the aid of insects. This they contend after an examination of the structure. After noting the behavior of the parts, and in the absence of insects, I contend they are self-fertilizers. But supposing they were all that is asked for them! Compare one with an ordinary polypetalous flower — say Ranunculus — and where is the gain? The floral parts are all on the same common peduncle in both cases, and the stamens and pistils are as widely—nay wider separated in a Ranunculus than in a Dandelion. Practically, there is a wider separation of the sexes in the Ranunculus than the Dandelion, granting even all or more than is asked for as cross-fertilization in composites. Physiological disturbances that aid the vital principle in the pistils, and interfere with that of the stamens, of course weaken the vital power of the pollen. In such cases foreign pollen—pollen from flowers free from these disturbances, or where the disturbances favor the stamens instead of the pistils, would have more potency. It is therefore not surprising that some cases should offer proving foreign pollen better than own pollen. It would be more surprising if there were none; for in every direction we find nature with overflowing abundance, pushing beyond what we regard as the necessary mark. As the boy, who to jump across the stream first goes back, and when he lands on the other side goes further than he wants to; so does nature in all things, or I have not read her story right. I can refer in a brief paper like this, to but a few observations I have made, nor do I think it necessary. I will now submit these propositions:—

1st. That cross-fertilization by insect agency does not exist to near the extent claimed for it.

2nd. Where it does exist there is no evidence that it is of any material benefit to the race—on the contrary.

3rd. Difficulties in self-fertilization result from physiological disturbances that have no relation to the general welfare of plants as species.

EDITORIAL NOTES.

Botanical Against Common Names.—The *Gardener's Chronicle* has the following:—"The report of the United States Commissioner for Agriculture for 1875, contains a catalogue of upwards of 400 species of forest trees, including, however, such plants as Yuccas. The same volume contains an elaborate and exhaustive account of the forests of the several States. For the benefit of those who rail at Latin names of plants we give the popular names of Abies Douglasii, which it appears is known as 'Douglas Fir, Red Fir, Black Fir, Douglas Spruce, Red Spruce, Black Spruce, Hemlock, Oregon Pine, Western Pitch, Bear River Pine, Swamp Pine, and perhaps others. Moreover, nearly all of the names are also ap-

plied to other species.'" Like the *Chronicle* we do not see how we could get along without botanical names, hard as some of them are. We do all we can to show this, but we must make it as easy as we can; and we can at least do without the long Latin names for garden varieties.

Very Late Blackberries.—The *Placer Herald* says, "that high up in the mountains, near the settlement of 'Yankee Pines,' there is a species of blackberry that ripens very late. We had good fruit gathered in these hills on Christmas day. The elevation is 3000 feet."

Lemmonia Californica is the name of a new genus of plants, discovered by that excellent working botanist, J. G. Lemmon. Dr. Gray will soon publish the description.

Fibre Plants.—The San Francisco *Herald* says:—"The manufacture of two new kinds of elastic fibrous materials for upholsterers' use has lately been commenced in California—one at Antioch from Tule, and the other at Los Angeles from Cactus—the former the product of the swamp and the latter of the desert. Meantime, the dried and twisted fibre of the Amole or Soap root keeps its place in the market as one of the best substitutes for hair, which continues to be preferred as the best stuffing for mattresses." The *Soap root* is perhaps the Chlorogalum.

The Use of Feathered Awns to Some Seeds.—One of Mr. Darwin's sons has, during the past two years, contributed some very interesting



articles to scientific serials on the uses of feathered and twisted awns to some seeds. He thinks that the feathered portion helps to keep the points of the seeds downwards, and that the twisting helps to screw them into the soil, as it were. The late Charles J. Wister, of Germantown, told the writer of this that he had experimented carefully with the Stipa pennata or feather grass, (see cut,) and that unless the point in some way got pressed perpendicularly into the earth, they would not germinate. Seeds laid horizontally, and covered with earth as in ordinary seed sowing, would not grow. The subject will be interesting to plant lovers, and we call attention to it now that seeds of this character may be saved to experiment with.

Fleshy Fruits.—The flesh of the fruit of most of our cultivated fruit trees is analogous to the enlarged roots of the Turnip and Beet, and similar plants, and is simply the product of cultivation, which is much sooner lost again under neglected circumstances than it was originally artificially produced. One of the most able French botanists, Professor Lecoq, of Clermont-Ferrand, who died only some few years ago, instituted numerous experiments with various wild plants to induce them to form fleshy roots, and he was almost invariably successful. Just as it is the task of the agriculturist to increase the volume of his roots, so it should be the aim of the fruit gardener to increase the flesh of pome, stone, and berry fruits, and the substance stored up in the cotyledons of nut fruit.—*Karl Koch.*

Descending Sap.—It is not affirmed by any one that we know of, that the elaborated sap does not descend. The modern notion is simply that it may, and does ascend—go horizontally, or in any other direction, as well as descend, according to time, circumstances, and the need of the plant. Suppose, for instance, starch is to be stored in a potato tuber, or wood to be formed in a vine rod; the matter out of which that starch or that wood is formed must in great measure pass through the leaves, and, therefore, it must descend to reach its destination. But starch is likewise stored up in the grain of wheat. In this case, then, it is obvious that the nutrient and store-containing or store-forming sap must ascend from the leaves; and the same holds true of fruits and stones (seeds) placed above the leaves.—*Gardener's Chronicle.*

Light and Vegetation.—In observing the influence upon vegetation of the long duration of light during the Summer months in high latitudes, Dr. Muller found that at seventy degrees north latitude, pears grew at the rate of three and a half inches in twenty-four hours for many days during the season, and that certain cereals

grew at the rate of two and a half inches in the same specified time. He also noted that the constant presence of light increased those secretions in plants which are due to the influence of actinic force on the leaves. The coloring matter and pigment cells were in much greater amount, and the tints of the colored parts were consequently deeper. The same effect was produced upon the secretions which give flavor and odor, so that the fruits of Northern Norway, though less sweet, are more savory than those grown in the South.

New Classification of Monocotyledons.—At the recent meeting of the Linnæan Society, Mr. Bentham, F. R. S., presented a long paper on the classification and nomenclature of monocotyledons. In the brief account he gave of the contents of his paper he urged that, in describing plants, care should be taken to employ terms that state facts and do not involve a theory as to what the parts described represent in other plants. He complained of the carelessness with which many writers indiscriminately employ terms. His new classification involves great changes. It was especially pointed out that external appearance is often misleading, and, for example, the Iris and the Lily in the new scheme are widely separated, the Liliacæ being brought into close proximity with the Smilacæ. Enough was said of the paper to show that when published it will arouse an unusual amount of interest among botanists.—*Gardener's Magazine.*

SCRAPS AND QUERIES.

The Double-headed Callas.—We have had numerous specimens sent to us since our last appeared, and have seen many growing. They must have been unusually numerous the past season. No doubt the peculiar arrestation of bud growth necessary to form the embryonic flower last Fall, was imperfect. It grew a little after having started to form the flower-bud, and then was again speedily arrested. It is like the rebounding of a stone on the water when thrown at an angle. It does not immediately sink as when it falls more in right line. The peculiar season was no doubt connected with this peculiar disturbance.

Variations in Pecan Nuts.—G. F. N. writes: "Please find herewith two nuts. No. 1 (the smaller), is sold in our fruit stores as the 'Texas Pecan.' In appearance it differs from the ordinary pecan. On cracking it you will find less of the bitter lining of that nut, and the meat plumper and sweeter.

"The other is said to be a cross between the Hickory and Pecan. A few were given to me; I think they come from Tennessee. My family cracked one of them, and found it had a thicker shell and a smaller meat than the Pecan. I wish you would *plant* this, and should extra assortment be necessary, please inform me."

[We have little faith in what "is said to be" about hybrids in nature. They probably rarely occur, and we know of no direct proof in any one case instanced. It is forgotten how great is a plant's own innate power of variation. At the late Centennial Exhibition, the Spanish collection contained a wonderful variety of the common European walnut—Madeira nuts—many of them more distinct in appearance from one another than these Pecan nuts appear; but they are not *hybrids*, for there is no other species but the one—Juglans regia—nothing to hybridize with.

The whole race of Shellbarks and Pecans are worth looking after in the wild woods; and when any are found first-rate select them, and *graft* them. It is a slow and uncertain method to go on by seed.—Ed. G. M.]

Freezing of Sap.—A Galena friend says:—"The opinion that sap freezes is a very common, though it may be a very erroneous one. Not long since we were talking with one of our foremost nurserymen, a man of ripe experience and enviable success, who stated incidentally that trees frozen solid in transportation may be thawed out by immersion in water or by being buried in damp earth (the whole tree, roots and branches being covered), and the tree will sustain no injury by the frost. Now query if the sap may be thus frozen out of the ground and thawed again without injuring the vitality of the trees, why not in the ground as well?"

[This is a correct observation. A tree which may have its roots wholly encased in frost under ground, escapes; the same tree, its roots exposed to the atmosphere, dies. If it has not been long or severely frozen, it may be recovered by immersing in cold water.

In like manner tender roses or similar half-hardy plants, kept in a close greenhouse where

the air is moist, will endure a temperature of zero all Winter without injury; but if exposed to the open air, are killed by half that amount of frost. The general impression, and we think the correct one is, that the juices are dried out by evaporation, frost as well as heat being an evaporator.—Ed. G. M.]

PHELLODENDRON.—F., Baltimore, Md., writes:—"I have had the Philodendron growing in past times, and know it as a very tender hot-house plant, with leaves having holes as if torn through them, and it bears a fruit that is tolerably good to eat. I see that you report a new one that is a tree, and hardy. Will it bear fruit like the other one, and is it not uncommon to have such hardy plants and stove-plantsin the same family?"

[Our correspondent misapprehends. It is Phellodendron, not Philodendron. It is the difference between a "friend" or "lover," and "cork." Botanists seldom tell why they name trees. They take it for granted that those who are interested enough in the meanings know Latin or Greek, and can find out for themselves. Mr. Sargent says the bark of this tree is very corky, and we suppose on this account it must have suggested the name Phellodendron. The Philodendron merely "loves trees." It is an arum that roams and rambles over trees. By the way, why the willow oak was named Quercus phellos we never knew, unless from some distant resemblance of the leaves to those of the cork oak. Perhaps



some of our botanical linguists can tell Of Philodendron we give an illustration herewith.

LITERATURE, TRAVELS & PERSONAL NOTES.

COMMUNICATIONS.

"PATENTED" FRUITS.

BY T. B. MINER, LINDEN, N. J.

There is but one feature of this proposed protection to originators of new varieties of fruits, in my opinion, that is practical—patenting the *name*—and this would be a great advance in the case as it now stands. For instance, I have spent twenty years in growing seedling grapes, and have expended a great deal of money in my experiments, and at last I claim to have originated the best varieties of white grapes, of purely native origin, in the United States. But to ask a patent on the fruit itself I consider of no use or benefit, because it would be impossible, in case of infringement on such patent, to prove that it existed. My grapes may be grown by others under a new name, and it would be out of my power to prevent it, because no description of the vines, fruits, quality, &c., can be embraced in a claim for a patent, that would enable any person or persons to select my vines from others when not in bearing; and when the fruit is mature the quality would be so various in different places, owing to a difference in soil, climate,

&c., that it would then be impossible to indentify the vines. So it would be with every new variety of fruit; all one would have to do would be to change the *name*, and then sell all he desired.

Take strawberries; for instance, the "Great American," the foliage being identical with a score of other varieties, and the fruit changeable in size and flavor in different localities, how could it be patented? I consider such a thing so preposterously absurd that it is a waste of time to argue the question. But if the *name* were secured to the originator, so that no one could sell "Great American" strawberries without purchasing a "right," the originator would be partially protected. It is true, that they could be sold under another name, but it takes several years to establish the character of a new variety of fruit, by advertising it, and having it tested in different parts of the country; and those persons who sell it under a new name would have to do their own advertising and build up a reputation for it at their own expense, which is something worth trying to secure.

Suppose, as the case now stands, that I advertise my new grapes extensively, and pay out thousands of dollars, and establish their character all over the United States; well, various enterprising nurserymen buy from fifty to one hundred vines each, and in three or four years they are able to supply the entire demand for these vines, and will do it on the strength of my previous advertising! That is wrong, and it tends to discourage producers of new varieties of fruits. Let us, then, try to secure our right to the *name* we give our fruit, and not to ask anything more, as we shall not obtain more if we ask it till doomsday. I offer no grape vines for sale at present.

RECOLLECTIONS OF AUSTRALIA.

BY WM. T. HARDING, UPPER SANDUSKY, OHIO.

(Concluded from page 123.)

The wild romance of nature was as perfect and as charming as could possibly be found in the sublunary world. In the small lagoons, or pools, through which the water flowed, grew Nelumbium Leichardtianum, a most magnificent crimson water lily, with immense leaves rising four or five feet above the water; among which floated the beautiful blue Nymphea gigantea. Among masses of water plants and large tussocks of Xyrus, especially, several pairs of the odd-looking mained geese had formed their nests. Quietly swimming about, were several sleeply-looking pied geese, and so stupidly *goosy* as to allow me to catch them. Nothing surprised me more than the discovery of a bed of water cress, the true Nasturtium officinalis, with which both the London and New York markets are supplied. What memories seemed to cluster round the little herb of other lands, the sight of which awakened happy recollections of friends, in "the fast anchored isle."

The rhizomes of Davallia pyxidata, and D. flaccida hung in lengthened masses, like twisted and tangled ropes, from the projecting crags, some forty feet long. The Stag's Horn Fern, Platycerum alcicorne, was indeed a curious sight to behold. Like a parisite, it seemed to live upon anything, moist or dry, and grew equally as well on the tops of the trees as on the soil beneath. A Loranthus, or mistletoe, a true parasite, was growing upon an Acacia platyphylla, near by. A splendid specimen of what I supposed to be a Macrozamea cylindrica, was perched high up on the edge of a projecting rock. On such an elevated vantage-ground, its peculiarity seemed more strange and conspicuous.

Many were the species of beautiful ferns, of which the annexed are but a few:—Polypodium Billardieri, Niphobolus rupestris, Zyphopteris hetrophylla, Blechnum lævigatum, Adiantum formosum, A. deltoideum, A. concinnum, Asplenium flabellifolium, A. obtusatum, Botrychium australe, Aspidium munitum, A. decompositum, Pteris falcata, P. esculenta, Dictyopteris pteroides, D. macrodonta, Microlepis rhomboidea, Ophioglossum gramineum, Lindsæa linearis, Neottopteris Australasica, Cyathea medularis, Alsophila Australis, and Cybotium Billiardieri—*splendid specimens*, averaging from twenty to sixty feet high. A tall and slender stemmed Alsophila Liechardtiana was one of the grandest of tree ferns I ever saw.

Hibiscus multifidus, a comely blue flowering shrub, was abundant. As a tree of mark, the very singular evergreen, Carpodonta lucida, had a striking appearance; its glossy foliage seemed to be dripping wet, as it glistened and waved in the sun.

Among a mass of detached rocks sprung the corrugated shaft of fine Xanthorrhœa, or grass tree. From the apex of its grass-like crown waved a beautiful flossy wand, or floral plume, several feet above. Pretty bushes of Prostanthera violacea, mingled with Chorozema

varium, Grevillea Manglesii, Cassinea denticulata, Zeria revoluta, Trichilia glandulosa, Ruellia Australis, and Pimelia linifolia.

Not more than a bow shot from where I stood I observed a circle of long lances, standing above the low shrubs and ferns. Every moment I expected to see the savage owners start up or make some movement; but not a sound or motion broke the silence. Imitating their usual call, with a loud *co-oe-ee*,

"I listened for a footfall, and waited for a word,
But the beating of my own heart, was the only sound I heard"

I cautiously advanced among the bushes, to reconnoitre, when, lo and behold! was a sight, at which I stood aghast. Before me lay the skeleton forms of nine human beings. In grim ghastliness, the bony structures lay bleaching in the wind and sun. No anatomical operation could have been more skillfully performed by the professional anatomist, than had been done by a fierce army of ants. Their sharp and active mandibles soon dissect a carcass. Springing from between the ulna and radius bones of the fore arm of a skeleton, was a thrifty looking plant of Trichomanes venosa, a very graceful little fern. Its clinging rhizomes were gradually creeping round the bones, and had firmly attached its clasping roots thereto. Its beautiful pinnules so extremely slender, and resting on such fragile stipes, seemed to be more airy and gauze-like in their delicate green, which much resembled hair-lined etchings on ivory. The poor wretches had evidently come to an untimely end. Scattered around lay the wommeras, waddies, boomerangs, spears and shields —all wooden weapons, of the most primitive kind.

In the centre of an exceedingly fine specimen of Neottopteris Australasica, or Bird's Nest Fern, rested a fleshless skull, around which the long, undivided fronds radiated, after the manner of an Elizabethan frill or ruffled collar, and much like the stiff muslin *chevaux de frise*, with which the artist usually surrounds the face of "good Queen Bess." The forbidding grimace of *death's head* shocked me, as its eyeless sockets seemed to fix me with a horrid stare. With a shudder, I turned from "those holes where eyes did once inhabit," and leaving the sickening scene, retraced my steps along the solitary wild, and was soon again by the side of Patrick, my invalid companion. To my inquiries regarding his health, he astonished me by saying, "he never felt better in all his born days whenever he faced Mt. Alexandria, but whenever his face was towards it, he felt as if he was kilt, intirely."

Abernethy, in his ever prompt and peculiar way, would have treated such a case heroically, no doubt. But as he had gone to the shades long ago, it remained for the writer to assume the role of Esculapius for once, and from his own vade mecum prescribe for his suffering companion. The diagnostic symptoms, evidently, indicated a very severe attack of *gold fever*. As our stock of drugs was small, and my allopathic knowledge still smaller, I concluded *a la Hahnemann*, to prescribe *similia similibus curantur*. Reluctantly, I, with my fever-stricken friend, turned again towards the gold fields. When in sight of a miner's hut, we halted beneath a Mimusops cyanocarpus, a very curious tree. The wonderful "cow tree," M. eliator, of the Amazons, so frequently described by travelers, is a congener, which, with M. dissecta, when once seen, are trees ever to be remembered. The flowers bear a striking resemblance to a monkey's face. Feeling more sick and sorrowful than my friend Patrick after a long parley, I clasped his honest hand for the last time, and bidding him God-speed, separated forever.

EDITORIAL NOTES.

Ruined by his Greenhouses.—The Boston folks should look after the agent of the Associated Press of their city. While sending an account to every leading paper in the country of the failure of one of their citizens, he coupled it with his "opinion" that the trouble was caused by "inordinate expenditures on greenhouses." The Associated Press pays for news and not for opinions, especially opinions that are founded on mere guesses. We venture to say that no amateur's greenhouses in the United States cost as much as the horses and carriages, or as much as the Winter parties and other extravagances; and though it might be contended that horses save car fare and railroad rides, the fruits, vegetables and flowers used in a family surely save as much as horse-keeping does. In this particular case we feel especially sure that "inordinate expenses on greenhouses" would not have amounted to anything like $3000 a year, which would hardly involve a man to the extent of perhaps a hundred thousand dollars.

THOSE RASCALLY SEEDSMEN.—We find the following letter from a sufferer in the *Gander-swamp* (O.) *Slatesman*. We understand that the gentleman, who was so fearfully swindled, encouraged by recent legal decisions in New Jersey and elsewhere, does not intend to suffer the matter to rest here, but has engaged our horticultural friend Judge Frank of Dayton, to see him righted in the matter. We may look for lively times.

MR. EDITOR:—I bought from Mr. —— the finest and rarest varieties of flower seeds I found described in his catalogue.

I made a hot-bed four feet thick of fresh, loose manure, placed fine earth over it, composed mostly of decayed cowdung and chicken manure. It was black and rich, and seed having any vitality at all would surely germinate in such soil. I sowed my seed in this bed and covered it about four inches deep with a composition made of one-third of the fine earth aforesaid, one-third of bone-dust and one-third of Peruvian guano. The heat of my hot-bed was splendid—hot enough to boil water.

I saturated thoroughly three times each day to encourage the seeds to do well. You say seeds should never be allowed to become dry after they are sown. I watched my hot-beds very attentively daily, anxiously looking for the seeds to come up in luxuriant growth. I was already seeing them in imagination at my dooryard, blooming in a sea of glory next Summer.

I really thought my heart would break when, after long days and weary weeks of watching, not a flower seed came up. At the same time when I sowed my flower seed I also sowed some cabbage seed into my hot-bed. The cabbage seed sprouted a few days after it was sowed, but it grew up at the rate of two-forty, spindling like a darning needle. The plants could not stand up straight. They gracefully hung their heads down to the ground like stalks of Indian corn in Summer after a severe storm, showing that the cabbage seed must have been sickly when I got it, and that the flower seed was as dead as a door-nail before it was sent to me.

Oh, for a modern Attila, who would be a scourge of nurserymen and seedsmen, who would kill all the swindling nurserymen and seedsmen, together with their families, and their relatives to the fifteenth degree.

I do not believe that a drop of honest blood would be harmed if all the nurserymen and seedsmen and all their friends and relations were indiscriminately slaughtered, and their heads used to build pyramids in Tamerlane's fashion of old, as a terrible and lasting warning to all rascals.

You may say that I am excited; that I am mad. I say, yes; I am excited; I am mad; and I have every reason to be so. It is well for these villians that I am not in possession of witchcraft, for woe be unto them if I were. I do think it is too provoking to be swindled and victimized year after year by a set of thieves and plunderers. But enough of this sad chapter. I do neither ask nor expect any advice from you in this matter, because there is none to give; but it relieves my bleeding heart, and throbbing, aching temples to know that you share my grief by knowing of it. This world would be a paradise to us if we were spared the agonies given us by dishonest nurserymen and seedsmen. As it is, it is "a vale of tears—dead."

TORNILLA.—In the published reports of the meeting of the Linnæn Society of London it is said the Strombocarpus pubescens of New Mexico is called, by the natives, *Retorquilla*, it should be *Tornilla*, we think.

A DAHLIA CATALOGUE.—It puts us in mind of some thirty years ago, to see a beautifully gotten up catalogue wholly on Dahlias! It is from Mr. Max Deegan Junior the second, and from Kostritz in Thuringia, and we really think the Dahlia deserves more than the cool treatment it has had of late years. Mr. Deegan grows only Dahlias, having given up all other branches of the floral business for them. Such devotion deserves reward.

HOW TO RAISE FRUIT.—A hand-book of fruit culture, by Thomas Gregg, New York, S. R. Wells & Co., from J. B. Lippincott & Co., Philadelphia. Every year there are large numbers of little books issued from the press on this and kindred subjects, which are evidently not intended for those who have made much advance in horticultural knowledge, and which are aimed at, and really do reach many who rarely or never see more advanced publications. It would hardly be fair to apply the same rules of criticism to these as to more pretentious works. They do a great deal of good in their way, and we were glad to see that there is a demand and a good use for them. Mr. Greeg's book is quite as

good as a large number of this class, and far superior to many that have had higher aims. We are not sure but we might take exceptions to some of the statements of facts. For instance, we read that "Thomas Meehan, the intelligent Editor of the *Gardener's Monthly* of Philadelphia, recommends the growing of pears in a grass sod, *as a preventative* of *blight*." The part we have italicized is incorrect. We have never had any evidence that pears in sod are exempt from the fire blight, nor ever have so stated.

The Onion Smut. By Prof. W. G. Farlow.—To the obligations practical horticulturists all over the country are under to the Botanists of Cambridge we have now added this labor of Prof. Farlow on the Onion Smut, which is a fearful pest to the onion crops of Massachusetts and Connecticut. Prof. Farlow does not know that it has been noticed elsewhere. It is caused by a fungus nearly allied to the rye smut. It is named by Prof. Farlow, Urocystis Cepulæ; the spores enter the plant with the sap, from the ground. It is not safe to plant onions in infested ground for three or four years.

Hatching Eggs and Raising Poultry by Means of Horse Manure. By A. Corbett, New York, Orange, Judd & Co.—For many, many years there have been numerous promising inventions for raising chicks without a mother, but all have been abandoned after a year or so of trial. We do not think the author knows why all these have failed. Whether his own plan will share a similar fate when it gets into other hands or not remains to be seen. Whether or not, there is quite enough of information about chickens in health and chickens sick to make the cheap little book well worth the money, though the buyer never sees an "artificial" chick.

Melbourne, Australia, Botanic Garden Annual Report for 1876. By W. R. Guilfoyle, Esq., Director.—This is very pleasant reading, showing how a garden can be made a place of pleasure to the whole people who support it, and yet not neglect the higher aims of science, which indirectly serve the whole people's good. These gardens are among the few very successful enterprises of the kind.

Western New York Horticultural Society, Proceedings of 22d Annual Meeting at Rochester, 1877. From P. C. Reynolds, Rochester, Secretary.—This excellent Society exists wholly by membership and contributions, yet publishes a good volume, and does good work. In this volume are excellent essays by J. J. Thomas on *Native Fruits;* Hugh T. Brooks, on *Insect Enemies;* Geo. Ellwanger, on *Ornamental Trees;* W. C. Barry, on *Botany;* Mr. Hooker, on the *Apple Crop;* M. B. Bateham, on *Storing Winter Fruits;* Prof. Comstock, on *Entomology;* Eugene Glen, on *Copyrights to Originators of Horticultural Novelties;* Dr. G. Ware Sylvester, on *Phylloxera;* besides full reports of the discussions. The article on "copyrights," by Mr. Glen, is especially interesting in view of the recent discussions in this respect, and is one of the most ably reasoned arguments in favor of a "copyrighted name" to a fruit, that we have seen, and deserves to be studied by all interested in the production of new fruits, seeds or flowers, and who really desire to see discoveries well rewarded, according to their worth. Mr. Glen has, by no means, perceived all the objections to copyrighted names. Some of the worst objections are among these that are overlooked, but this we leave to others to look after. We can only say that, at this meeting, Mr. Glen's well-reasoned remarks do not appear to have met with opposition at the meeting.

Horticultural Societies.

EDITORIAL NOTES.

The International Exhibition Company.—The immense structure known as the "Main Building," of the Centennial Exposition, the largest single hall, perhaps, ever built in the world, has been purchased, most of our readers know, by a private company for the purpose of holding a perpetual exhibition of the products of science and art. Horticulture and agriculture in any

of the features that will admit of permanent exhibition have not been overlooked by the management, and any one interested in these departments will find a day spent in this wonderful building very far from being lost.

NewYork Horticultural Society.—Schedule of Premiu ms for 1877.—This new society appears to be in a flourishing condition. Mr. John Henderson is President, and Mr.W. J. Davidson, box 191, Brooklyn, N. Y., Recording Secretary, from whom the schedules can be obtained. The Fall exhibition will be held on the 22d, 23d, and 24th of September. From New York papers we learn that there is a gratifying increase in the number of amateur visitors to the meetings of the Society, which are regarded as in every way a great success.

Massachusetts Horticultural Society.—Schedule of premiums for 1877.—Competition open to all. $6,100 are offered for premiums. Among the matters of general interest are the following offers for essays: For the best Essay upon the Culture and Varieties of Roses, $25; Culture of Flowers and Foliage for Winter Decoration and the Market, with a list of the most desirable varieties, $25; Ripening and Marketing of Pears, $25; Garden Irrigation—its Advantages and Limits, $25; Bottom Heat—its Benefits and Methods, $25; Chickweed—its Effects and how to Eradicate it, $25.

The Essays to be directed to "Robert Manning, Secretary of the Massachusetts Horticultural Society, Horticultural Hall, Boston; for the Committee on Publication and Discussion," so as to be received by the first of November, in sealed envelopes, unsigned, but accompanied by the name of the writer in a separate sealed envelope. Notice will be given to successful competitors of the time for reading their Essays. All the Society's prizes are open to general competition. William C. Strong is the Chairman of Com. on Publication and Discussion.

Germantown (Pa.) Horticultural Society.—In looking through the pretty little exhibition during its April show, we noted a few items which may interest the general reader.

In the collection of Thomas Hendricks, gardener to Mr. John Jay Smith, there was a specimen of the new Hydrangea, Thomas Hogg. It is more distinct than one would suppose from the description, for the flowers are not only larger and of a pure white, but have an angular outline which strikes the reader at once as novel. Mr. Hendricks had also a stand of remarkably fine Marshall Niel roses, the result of a graft on the Banksian stock. We have before noted how very well roses under glass culture do when grafted on the Banksian, and was glad to be again reminded of it in this pleasant way. It is a pleasure to see people trying to make handsome things of old fashioned plants, as occurred to us as we saw Mr. David Hunter's specimen of the cut-leaved variety of the rose geranium. It was about *four feet* over. It might have been improved by a little guidance in growing it, but still it was impressive from its size. Mr. H. had also a plant of Abutilon vexillarium, grafted on a straight stem about three feet high, which mode of growth suits the drooping flowers very well. He had also some well-grown pansies, the flowers of which were two and a half inches across. Mr. James Ritchie of Philadelphia, had a remarkable collection of imported azaleas, remarkable not only for the beauty of the flowers, but for the skill in training, as in form they were all made to appear as bouquets, each of the exact size of the other. As to varieties the Countess of Kerchove was particularly beautiful. It was of a semi-double white with bright carmine stripes. Alex. Newett, gardener to Mr. H. Pratt McKean, always attracts close attention to his plants from the orchids which he generally has in bloom. Here was a hanging basket with numerous pendent clusters of Ærides odoratum; the deliciously scented but not showy Maxillaria Deppei, and a few others. A very delicate and beautiful palm in the same collection, is Sabal tomentosa. It was as graceful as some ferns. The old fashioned flowers were worthily represented by Matthew McCleary, gardener to Miss Dorsey who had a plant of Epiphyllum speciosum—an old cactus but seldom seen—with seventy-eight blossoms on it! And by Mrs. Dunton with her wall-flowers, which for richness of perfume by those who do not get intoxicated by full draughts of sweet odors, is particularly welcome. Mr. R. J. Siddall had a large quantity of the new "calla" Richardia maculata. For flowers it is not of course as desirable as the old Richardia ethiopica, but the spotted leaves are of such a healthy appearance, that its position as a good window-plant is near the top of the list. We mean that it harmonizes well with works of art. Mr. E. Lonsdale had a very fine plant of a Mule Pink. These are hybrids between the common "Carnation" Pink and the Chinese Pink, and we are

moved to say not only that this particular variety was good, but that the whole race deserves more extended culture. The President, Mr. Galloway C. Morris, had a large number of beautiful plants—among others an Azalea mollis, very striking by its orange oblique flowers, and an Indian Azalea, "Beauty of Surry," also attractive by reason of the pure velvety texture of the petals.

American Pomological Society.—In addition to the programme as noted in our last, invitations have been accepted by the following-named gentlemen to prepare papers:—Prof. W. J. Beal, of the Agricultural College, Lansing, Michigan, will prepare a paper on "The Classification of Apples;" Prof. A. N. Prentiss, of Cornell University, Ithaca, N. Y., will prepare a paper on "The Pathology of Cultivated Plants." It is expected that other gentlemen of experience and skill will present papers on practical or historical subjects connected with fruit-culture, such as "The Species of the Apple," "The Bitter Rot of the Apple," etc.

Horticultural Pioneers in the West.—The *Chicago Tribune* names as among the early horticultural pioneers of Illinois, Samuel Edwards, Mr. Harkness, Mr. Overman, John B. Tull, Mr. Shepherd, Tyler McWhorter, Mr. Hunt, Mr. Kinney, Mr. Mann and S. G. Winkler—of the good works of the most of which we also can attest as being well merited.

SCRAPS AND QUERIES.

The Centennial Exhibition—A Letter from President Wilder.—Mr. Editor:—In running through your last *Monthly*, I am pleased to see that the same nerve guides the editorial pen with usual vigor. Your article on "Self and Cross-Fertilization" pleases me. You are well posted—go on, and you will be able to make clear many mysteries in that science. This "little cloud of pollen" floats in the air as the fragrance of flowers permeates it, and although invisible to the naked eye, impregnates every pistil within its reach. These fertilizing grains, by the aid of the microscope, may be seen on shaking the flower, to rise like dust in the air, eager to light upon their companions for the procreation of their species. Your experiments are very ingenious and instructive, and agree with my own experience in regard to the diffusion of pollen and its subtle effect. One instance in proof—the Wilder strawberry is a pistillate plant, and its foliage is so tall that it covers almost completely its blossoms, and yet they are fully impregnated by a bed of Staminate, if in the vicinity, and produce large crops of fruit.

I have been much interested in your article on "The Centennial Pomological Judges," and the frank and honest explanations you have made on the subject. As one of the Advisory Committee of the Bureau of Agriculture, I did what I could to impress on the Commissioners the great importance of American Pomology, which should have astonished the world by its exhibition. Considering the disposition to almost ignore it, the wonder is that during the week in September there should have been more than twelve thousand dishes of fruits on the tables. And let it not be forgotten how much the public owes to you and other judges who, without compensation, served for months in the Horticultural and Pomological Department. I thank Mr. Lincoln for his recognition of those worthy compeers to which he alludes by name, all of which are better entitled to the "*Clarem et venerabile nomen*" than the other person designated.

Notes on the Centennial Pomological Exhibit—Letter from Mr. Burnet Landreth.—Mr. Editor:—Permit me to correct a typographical error in the extract from my official report upon Pomology, at the International Exhibition. The last passage, as printed in your May number, reads, "The Pomological Judges examined patiently and critically two thousand distinct dishes of fruit." The reference to two thousand applies, *not* to dishes, but to *distinct exhibits*, many of them comprising three or four hundred dishes each, as in the aggregate the judges passed upon 61,391 dishes.

Exactly four-fifths of the examinations were made solely by the resident Pomological Judges, who did half the work in the remaining fifth. For six months they twice and thrice a week devoted both mornings and afternoons to patient investigation, and developed high technical qualifications, the range of species and varieties exhibited, exceeding anything in the history of pomology. For this labor, our pomological friends received the munificent (!) compensation, grudgingly awarded, referred to in your last edition.

THE

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AND

HORTICULTURIST.

DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

Edited by THOMAS MEEHAN.

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FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

The many who admired the massing of the leaf plants in the bedding at the Centennial grounds last year, and have endeavored to imitate it this, will do well to remember, that just now much pinching in of the young shoots has to be done. It is the new growth made this month that gives the best colors in August and September, and this reminds us the Salvias were also pinched in; but where a fine early bloom of scarlet sage is desired, they should have no pinching back.

All who have given attention to hardy shrubs know how unsightly the prevailing fashion of winter shearing—for we cannot dignify the practice by calling it pruning—renders the bushes; and yet all feel the want of some method of keeping them within bounds, and in a somewhat cultivated form. If the strong shoots are thinned out now, all this trouble is obviated. The same remarks apply to street trees, and all others that it is desired to keep low and bushy to the base.

Hedges must be served in the same way. Trim off—regarding a due conical shape—all strong top shoots, and suffer the weaker and lower ones to grow as widely and freely as they will.

In many gardens there will be roses of poor and inferior kinds, or of good ones that the owner may desire superseded by better ones. This may readily be accomplished by budding or inoculating, and now and next month is the season to operate.

In almost all works on budding it is recommended to take the wood out of the bud to be inserted. This is necessary in the English climate, but unnecessary here, and never followed by practiced hands.

Amateurs may have some rare or choice shrub they may desire to increase. They may now be propagated by layers. This is done by taking a strong and vigorous shoot of the present season's growth, slitting the shoot a few inches from its base, and burying it a few inches under the soil, or into a pot of soil provided for the purpose. Anything can be propagated by layers; and it is an excellent mode of raising rare things that can be but with difficulty increased by any other.

The raising of new varieties of florists' flowers is an interesting occupation to the amateur. The process of hybridization, applies to all plants as well as to grapes; but good improved kinds of some things may be obtained from chance seedlings. The finest and doublest of Roses, Petunias, Dahlias, Carnations, etc., should be selected, and as soon as the petals fade, they should be carefully removed, or they will cause the delicate organs of reproduction to decay before maturity. A flower may be so very double as not to bear seed at all, as in the case of the Gillyflower or Stock; but if the pistil remains perfect, as it usually does, seed will ensue.

Dahlia seed may be preserved till the Spring. Antirrhinum, Rose, Carnation, and such hardy perennials, should be sown soon after ripening.

COMMUNICATIONS.

THE AILANTHUS.

BY MR. A. VEITCH, NEW HAVEN, CONN.

I notice in May number of *Monthly* that Gen. W. H. Noble, Bridgeport, Conn., in speaking of the Ailanthus, is inclined to believe there are more than one species in cultivation, which belief seems to rest upon the fact that there is great diversity of color in the ripening foliage of different trees. This difference we have often noticed, but it is not sufficient to constitute a species in this case, any more than in the Maple or the Beech. In the Beech, or Fagus sylvatica, there are several well marked varieties in cultivation, chiefly distinguishable by the color of their leaves, and are known by such names as F. sylvatica atrorubens, cuprea, fol. variegata, fol. aureus, &c. And we may yet hope, when the Ailanthus receives the attention it deserves, such varieties as Gen. Noble speaks of will be sought after with as much avidity as some novelties now are, and their fitness for ornamental purposes fully appreciated.

It seems more than likely A. glandulosa is the only one grown in the Northern United States. The other species, A. excelsa, according to Loudon, is an evergreen tree, fifty feet in height; a native of the East Indies, and requires greenhouse protection; was introduced into Britain in 1800; leaves abruptly pinnated; leaflets serrated. The leaves of glandulosa are pinnated with an odd one; leaflets toothed at the base; teeth glandular.

CULTURE OF HARDY RHODODENDRONS.

BY WALTER ELDER, PHILADELPHIA.

The conflicting statements of your correspondents in regard to Rhododendron culture are, I think, calculated to deter others from making the attempt. But, that hereabouts, at least, they can be grown with very little extra care, there are many cases to prove. At the home of David Landreth, at Bloomsdale, they have been successfully cultivated for over a quarter of a century. The first lot set out was alongside of a building with eastern exposure. Others were set out in different exposures as time went on, and now all flourish and bloom profusely every May. No other preparations were made for them than digging holes, pulverizing the soil, and putting the surface turf in the bottom of the holes, grassy side undermost. They were at first mulched with saw dust. The soil is light loam, the land nearly flat. I have observed that the plants set near to tree-stems and those exposed to sunshine from 4 P. M. to sunset, are of lean growth; yet they bloom well. Those set well off from the trees, but yet partially shaded by their branches after mid-afternoon, are very hemispherical bushes, their foliage wholly hiding their wood; and they blossom profusely, annually. I advise all who can, to visit Bloomsdale in May and see the plants in bloom.

Twelve years ago I purchased in Robt. Buist's nursery some Rhododendrons which were growing in a heavy loam, and were fully exposed to Summer sunshine and Winter storm. I planted them upon a bed of garden soil, enriched for previous crops. They all flourished and bloomed profusely. Seven years afterwards when I visited the place, they were still doing finely. I have planted for many others around Philadelphia, and they universally do well. There may be latitudes, altitudes, localities and exposures, that may not suit the culture of hardy Rhododendrons, but I think the extravagant preparations of rich composts, three feet deep, prevent success. The extraordinary protection sometimes given in Winter may also injure them. Mr. Robert Buist once stated in your columns that the Ponticum and its sub-varieties were tender. I have found them as hardy as others here. Their leaves are long and narrow, much reflected, and of a dull green color, and are very smooth. Most of their blooms are tinged with lilac.

BEAUTY OF GLAZENWOOD ROSE.

BY J.

Allow me, please, to say a word about this rose, about which so much has been recently said in regard to its being the same as Fortune's Yellow Rose, and the cry that has been made about "fraud" and "humbug" in connection therewith. There are so many people in the world who love to believe that every thing introduced is a fraud and a sham, that nothing gives them so much pleasure as to believe they have "found a skunk" which they can prove to the world is really and truly one. These people never allow that there is any room for an hon-

est mistake, or that there is full value given, though it may not be just as was intended. It is "a fraud" and nothing less, and "they told you so."

Now, here is a rose which has been introduced by Mr. Bull, Mr. Saul, and many other men whose honor stands as high as any one's in any walk of life, and who have issued colored plates, showing that a rose like "Madam Falcot" in golden color, had also the addition of crimson flakes. It is now said this rose is nothing but the old Fortune's Yellow. It is some years since I saw Fortune's Yellow. I never saw it with crimson flakes, but it would often have a coppery sort of tint not usual in its general style of flowering. This Beauty of Glazenwood is striped. I do not know the origin of the rose, but I strongly suspect that a branch of Fortune's Yellow produced striped flowers, and that this branch was cut off, propagated, and the plant named accordingly. In such cases, it is not impossible that it would run back to the original, and thus it would be perfectly right to say it "was nothing but Fortune's Yellow Rose;" but this would not make it less just to name as distinct the striped form, so long as it proved distinct and permanent. The climbing Devoniensis was raised in just this same way. The original Devoniensis is a low-growing rose. A shoot pushed out of immense length, and propagated, it has retained its character, and is kept as distinct. If it had run back it would have been a misfortune—but would it have proved fraud in the original raiser? Our Isabella Sprunt is a sport from Saffrano in just the same way. It has proved constant, but there is nothing impossible in a variety so raised running back. If it did, would the good Methodist preacher who raised this good rose be a fraud? Variegated leaved plants and striped flowers of all kinds have a regular habit of running back—as every cultivator knows who buys them—and he buys knowing he will have to watch for the green sprouts and take them off.

Fortune's Yellow is a good rose, and ought to be more grown. Though so many years introduced, few have it. If one buy a Beauty of Glazenwood, and it turns out to be Fortune's Yellow, the purchaser will not be badly hurt.

Mr. Editor, I am a lover of roses, and I sell roses. It so happens that I am not yet the possessor of a Beauty of Glazenwood. But I love justice, and the management of the *Gardener's Monthly* shows you do; and I have thought that these pickings from rose history would not be inopportune at this time.

GAS LIME.

BY GEN. W. H. NOBLE, BRIDGEPORT, CONN.

One of your correspondents recently noted and queried about some uses of gas lime. The material certainly gives promise of many; but no one has yet devised enough to save the most of it from the dump. If any one knows just how and what to do with the thing, he ought to tell us. By-and-by, I doubt not, somebody will find the way to rescue from waste a product so stored with elements valuable to the arts and common life.

The lime used to cleanse our public gas, from things hurtful to its light, comes out of the vats loaded with a host of those wonderful products, which distilled coal and coal oil have yielded to the skill of modern chemistry. Let's see—there is in gasoline carbolic acid; some free and some gone with the lime into carbolate of lime. Then there is some free sulphur and sulphur acids, and sulphate of lime; some phosphate of lime, I believe, lurks in the mass. Some coal oil hangs around, and some ammonia, too, is under bondage in the heap. Doubtless many others of that "innumerable caravan," which chemical witchery has summoned out of the products of coal, slumber in the dull green pile.

Now, one would think that such a team of elements would ere this have been harnessed and broke to useful work. Why! what powerful disinfectants are those compounds of carbon and sulphur—how destructive to insect life their odor or touch. How nutritive, or absorbent of vegetable stimulants, are ammonia or the sulphuric combinations. The trouble is, the dose of each is too big. There is altogether too much cure. It is allopathic with a vengeance. So far as help in horticulture is concerned, we need a new Hahneman, to give us a homeopathic regimen for gas lime virtues.

For instance, when coal tar paint burns our plants, who is ready to say that a little in the mixture which we use would not help, while a good deal hurts? Who has tried a sprinkling of gas lime in the greenhouse, to squelch the fungi or drive off the insect pests?

Now, take note, I am not instructing or saying this or that about gas lime, for sure. I only suggest the likelihood of good to come from trial. It is by trial, when there is a likely lead, that pre-

cious mines are reached. Just so it is in matters and places horticultural. So, I suggest trial of gas lime. How about gas lime for the Phylloxera, or the root fungus on the peach? I tried it on a peach stricken with the yellows, laying near the roots, sprinkling over the gas lime, and then covering with earth. The jaundice changed to a rich green, and the spindling shoots gave place to those of stouter and healthy growth.

After lying a year or two in a heap, as exposed to the air, the strong smell and acrid, caustic touch of the gas lime is gone. I know not whether its virtues go, too. Doubtless, however, much goodness still lingers in the pile. Now, let some one else tell us "what he knows, or has done, about" gas lime.

DIANTHUS.

BY W. C. L. DREW, EL DORADO, CAL.

This is one of the handsomest families of plants known to gardeners, and to tell of the praise of all its members would require several numbers of the *Monthly*. I wish only to speak of Dianthus lacinatus and Heddwigii, two of the handsomest flowering members, and which are far too scarce. Both of these are natives of Japan, from where they were introduced several years ago. The flowers of lacinatus have the edges cut and laced in the most picturesque



manner, resembling the finest lace. (See cut.) Those of Heddwigii have very full petals, only very slightly notched.

Of both varieties there are single and double flowering kinds, and both single and double are fine. Both varieties bear very large flowers, of-

ten measuring three inches in diameter. In color they vary from pure white to deep blood-red; many have flowers marbled in most curious and striking manners, some resembling mosaic work in their marblings. They are very easy of culture; seed sown in a hot-bed in February will flower in June, and remain in flower, if seed pods are removed, until frost.

I find them unrivalled for bouquet work, and it was to recommend them for this work I undertook to write this article. If every gardener would buy a package of seed and try them, they would never do without them again.

EDITORIAL NOTES.

The Sweet William.—This old fashioned flower seems to be again attracting the notice of the florists; and some remarkably pretty kinds are announced among the latest English novelties.

"Fragaria arborea."—A correspondent sends a leaf of a tree for name. The tree was bought by a neighbor for $5, "at the French store on Chestnut street," as "Fragaria arborea." The leaf is of some species of Euonymus, we do not recognize which.

To Moisten Dusty Roads.—It is said that "trials have been made in Rome of a solution of chloride of calcium as a substitute for water in laying dust in streets, and the results are said to have been highly satisfactory. The dampness communicated to the road remains for a whole week. The road remains damp without being muddy, presenting a hard surface, on which neither the wind nor the passing of pedestrians or horses has any effect."

Deterioration of Grasses on a Lawn.—W. N., Boston, says, that his "lawn has got annually worse and worse, until now there is little grass, and nearly all weeds. What shall I do to restore my lawn? I have no very large tract, but take much pride in it."

[This is, no doubt, a case of "lawn mower," about which we have often written. Grass cannot grow without leaves any more than other plants, and if kept cropped too close it will surely die. Then, creeping weeds which escape the mower blades, take its place. There is nothing to be done but to cut higher in future. Under no circumstances go lower than half an inch from the ground.—Ed. G. M.]

The Erythronium, or Dog's-tooth Violet.—There are few of our people who have gathered wild flowers, but who know the Yellow Dog's-tooth Violet. Why it has received the name of Dog's-tooth Violet may not be well known to our readers, and the following little bit of history from the *Garden* will be of service. The botanical name, Erythronium, is said to be derived from a Greek word, "signifying red," "the color of some of the species," but this seems to be a very poor reason:—"This obtains the name of Dog's-tooth Violet because of the long fang-like tuberous roots that are white in color like a tooth. Apart from the lovely flowers the plant produces, the leaves of the red variety especially, are very handsomely marked. As soon as the ice and snow which hold the earth in bondage in February are dispersed by the warm breath of Spring, it issues forth, first unfolding its handsomely marked leaves, and then its charming flowers, borne singly on stems four inches to six inches high, and drooping gracefully. The flower is surpassingly lovely, and it comes into bloom with the Snowdrop, Hepatica, and Spring flowers. A moist peaty soil, with which has been mingled a good deal of sand, appears to to suit the Dog's-tooth Violet as well as any. Shady spots are generally recommended for its culture, but it is frequently met with in positions fully exposed to the sun, and doing well. In some localities it appears difficult of cultivation, mainly from the unsuitability of the soil; in others just the opposite results—it flourishes with all the vigor of a native plant. In the midland districts, where there is more humidity pervading the atmosphere than in the South, it scarcely fails to do well. In addition to the imported species, which bears rosy purple or lilac flowers, there are also varieties of it, such as Album, white; Purpureum, purple; and Roseum, rosy. These have been selected, because showing a certain distinctness of color, and have been found to retain it when in cultivation. There is a distinct large-flowering type of the original species, known as Major, in which the leaves and flowers are both larger than is usually seen. The purple-flowering varieties have the green leaves handsomely marked with reddish-brown, and when at their best are more attractive than those of some handsome-foliaged plants that are sold at a high price. The white-flowering variety has the leaves blotched with a kind of whitey-brown color. There is also an American species, E. Americanum, which bears

yellow flowers, and blooms a little later in the season. A variety of this is also obtainable, having brown spots at the base of the flowers. It is recommended that every third or fourth year the bulbs be lifted, separated, and re-planted."

THE TULIP TREE.—A Vineland correspondent of the *Country Gentleman* has the following good words for this very beautiful ornamental tree. The practical experience detailed will be of great value to those who have not succeeded with it. We may add that no tree relishes more being pruned at transplanting:—"In 1870 I bought twenty, about four feet high, of a dealer here, and gave them good clean culture two years, when I had them transplanted and set on my roadside as shade trees—to comply with the Vineland shade tree law. They had a perfect mass of fibrous roots, several times more, indeed, than seemed necessary. Not one of them died; all are alive now, growing finely, and are about fifteen feet in height, and give every promise of making a magnificent row of trees. But I keep them cultivated and intend to do so several years yet, as I have not much faith in growing trees in grass.

"I say then, to those who desire this splendid flowering tree, and must buy them, to buy them small and cultivate for a few years. Some may die in transit, but the loss in cost will be insignificant compared with the loss in trees from six to eight feet high. In a wholesale price list before me, I see that plants one foot high are furnished at $3 per 100, while those from six to eight feet high cost $60 per hundred; or ten of the first will be sent for fifty cents, and ten of the latter for $7.50. The 'immediate effect' of ordering the last size for long distances will affect the purse more than the lawn or the roadside. Buy small; cultivate; transplant at your leisure, and then you can plant trees of uniform height, and can count on their living. In planting, pare the mangled ends of the roots, and from all those of any size, a half dozen or more new branches will put out. A few shovelfulls of pulverized muck, worked in among the roots, will aid to retain moisture, and do something to insure growth.

"All that Mr. Bacon says in praise of this tree is just; only he has not said all he might. Its foliage, its flowers, its shape and its wood, are all unsurpassed, while a crowning negative merit is, that it has, as yet, no insect enemies. Most shade trees have these in certain seasons, but the tulip, so far as I ever observed, or read of, or heard of, is exempt. It is, too, a rapid grower; nothing desirable equals it here in growth except the soft maple, and it is becoming *par excellence*, the standard tree of Vineland. More trees of this variety have been planted during the last three or four years than all other kinds put together. At seven or eight years after permanent transplanting the blossoms appear, and they are almost as beautiful and fragrant as a water lily. A few of the 'pioneers' are beginning to blossom here, and every year will increase the number."

NEW OR RARE PLANTS.

PYRUS MAULEI.—This desirable new fruit has been introduced into England from Japan; it is allied to the Japan Quince. The fruit is the size of a moderate Quince, of a bright apricot-color, and makes a rich conserve. The flowers, which are produced in great profusion, are of a most brilliant orange scarlet color. It is one of the most beautiful flowering trees of recent introduction, as well as a valuable fruit.—*John Saul.*

PHELLODENDRON AMURENSE.—A very hardy ornamental tree, flowered last season at the Cambridge Bot. Garden. It has been there fifteen years, so is quite hardy. The plant is dicœcious and a native of Maudchuria. It grows in its native places fifty feet high, and has a trunk one foot thick, with a corky bark. It is allied to Ptelea and Xanthoxylum. Prof. Sargent contributes a fuller note on the subject to the April *American Naturalist.*

NEW MAGNOLIAS.—We have from Mr. R. B. Parsons & Son, flowers of Magnolia Lenné, M. Thurberi and M. Halleana. These are varieties—the first of purpurea, and the other two of the Chinese. The Lenné differs from the M. purpurea in having very broad petals. Halleana has numerous narrow, white petals—is in fact semi-double, and Thurberi is a fine petaled variety, more on the cream. In reference to these we have the following note:—"I sent you yesterday by mail, a box containing flowers of Magnolia Thurberi, as we named it long ago. Since sending it, Mr. T. Hogg tells me he is under the impression that he bloomed it some time ago under the name of M. stellata. We have grown

it about twelve years, and these are the first flowers we have had. It is good as a variety, but not equal to Magnolia Halleana, which with its dwarf habit, small flowers and fragrance is a great acquisition. This, M. Halleana, we have bloomed a number of years. These Magnolias, with Retinosporas and other things, we received from Dr. Hall, who was then in business in Japan, and very fond of plants. I hope you will be able to form some idea of the character of the flower."

SCRAPS AND QUERIES.

Fine Sciadopitys.— Mr. John Mugford, New Haven, Conn., kindly furnishes the following note :—" Seeing an article in the *Monthly* about the Sciadopitys verticillata, I wish to say that in Prof. Salisbury's garden there is one that has stood two Winters with but slight protection and now stands four feet high."

Weeds in Lawns.—E. W. G., North Easton, Mass., writes :—" I send you by this mail a box containing samples of two different plants or weeds that have come up over my lawn. Sample No. 1, which I have noticed for the last two years, has not been very plenty until this year; it is all over my lawn in spots, all sizes up to one foot square or more ; grows so thick that it kills all the grass where it grows. I am afraid that it will spoil my lawn in a year or two. Can you tell me what it is, or in what way I can get clear of it? I never saw any of it until about two years ago. I also find that one of my friends has the same in his lawn, spots ten feet square. Is it a plant that grows the whole season or only in the Spring of the year? Can you tell me if it is likely to continue to increase and spoil my lawn? Sample No. 2, seems to be an equally fast grower, but does not injure the looks of my lawn so much ; never noticed this until this year. Can you tell me anything about it? "

[The weeds were a small Veronica, and the Mouse-ear chickweed. This is another case of injury from close mowing whereby the grass is enfeebled and these little weeds are able to thrive. The grass must be left longer at mowing and it will keep down these little pests without much trouble.—Ed. G. M.]

—Dividing Herbaceous Plants.— E. D. C., Providence, R. I., asks :—" Would you inform me through your paper the best way to divide such roots as Aquilegia chrysantha and Aquilegia cœrula. I have not been successful in dividing them."

[These and all similar herbaceous plants are best divided in very early Spring, before the leaves have fairly pushed. Some woody-rooted things like Aquilegia are best divided with a piece of the old root, split down through its length for the purpose.—Ed. G. M.]

GREEN HOUSE AND HOUSE GARDENING.

SEASONABLE HINTS.

House gardening is nearly at rest just now. The flowers for Winter use are mostly in pots out of doors.

Most of the plants are set out for the Summer, as formerly recommended—little care will be required beyond seeing that they are not over or under watered. Some will be yet growing, and may be full of roots. If growth will probably continue for a while longer, pots a size larger may be furnished such. Whenever a shoot appears to grow stronger than the rest, so as to endanger compactness or any desired shape, pinch it back, and any climbing vines should receive due regulation as they grow over the trellis, or they will speedily become naked below. A good stiff trellis is a desideratum hard to be obtained by the uninitiated.

An important point just now is to prepare Winter-flowering plants. Cinerarias, Chinese Primrose, and Calceolarias should be sown about the end of the month; and cuttings made of most kinds of plants that are desirable. It is a great mistake, often made, to store up and treasure year after year, old and even grown

specimens, when younger ones would bloom more vigorously, and give better satisfaction. Propagation of plants will go on. It is one of the pleasures of the gardening art; and where old treasures are prized, the greenhouse soon becomes a crowded mass of ugliness, with credit to neither gardener nor owner.

COMMUNICATIONS.

ABOUT GREENHOUSES.

BY W. T. BELL, FRANKLIN, PA.

Rev. Mr. Powell, in May number, makes an intemperate charge against "Nasty Greenhouses," and, as there is nothing in the article implying otherwise, the charge seems to be a general one. This is as unfair as to denounce all clergymen as hypocritical scoundrels, because a few among the number prove to be so.

There are too many nasty greenhouses; but there are others, and I hope a large majority of them, in which there is nothing to offend the sight, or sense of smell, of the most fastidious. There are filthy, ignorant and boorish men engaged in the business, as well as men who are cultivated, intelligent and gentlemanly.

Forcing plants into a sickly growth, of which the writer complains, is to a great extent the fault of the plant buyers. Florists endeavor to grow what will sell best; and, if buyers foolishly require that every plant they get shall have flowers on it at the time, no matter what its size, or what the season may be, they should not complain if its vitality is impaired, by crowding it into such a condition.

But all florists do not grow plants thus. Many of them in all parts of the country are content to keep their plants under conditions suited to their healthy growth, and would scorn to send away, even if they had them, such plants as caused the writer "vexation of soul." Let Mr. P. find such a man—and I have no doubt he can do so in his own neighborhood—and trust him to select such plants as will answer the purpose for which they are wanted. Then, if he have any skill or judgment in the management of plants, qualities which florists do not claim to furnish with their stock, the result will be such as to convince him how unkind and uncalled for, was the article which provoked this reply.

HEATING SMALL GREENHOUSES BY A COAL STOVE.

BY G. A. H.

Perhaps my experience of the past Winter in heating a greenhouse by means of an ordinary coal stove, may not be valueless when added to that of your Ohio correspondent in the April number. The greenhouse in question is about 12x24, and is built against the west side of the kitchen. A bench runs along the whole front except at the end where the stove stands, the rest of the house being given up mainly to large plants standing on the floor or ground.

Not wishing to be at the expense of a boiler, and having a stove and plenty of pipe, I set the stove (a small base burner), in the northwest corner, at the end of the bench, digging down about eighteen inches to bring the flue at a proper height. The stove has four doors, with mica panels just above the fire pot. I took off the rear door and had one of sheet iron put in its place, with a hole and collar for smoke pipe. The stove then had two flue holes, with a piece of pipe about ten inches long projecting from each, the upper one having a damper. I then carried the smoke pipe from the lower flue hole along under the bench, and returned it to the stove, connecting it with the upper flue hole, and thence carrying it straight outside to the galvanized iron chimney pipe. The damper in the upper flue is left open till the fire is well kindled, when it is closed, so that the draught is then through the whole length of pipe. I have had no smoke or gas but once, when the outside pipe became choked by soot. This could have been prevented had I supposed it ever likely to occur. Last year (1875–6) the greenhouse was about half its present size, and I used the same stove, with a single line of pipe running the length of the bench, and out at the other end. In either case it is satisfactory, though of course the heat is not so steady as with a boiler.

This greenhouse faces west, and has no protection on the north (about as bad a position as can be, except due north), and a part of the main house projects on the south, keeping off the sun in the shortest days till after one o'clock. With no care between 10 P. M. and 6 A. M., the temperature at night has ranged from 42° to 48° at the coldest end. On two or three occasions it fell to 38°. The greenhouse was built mainly for ferns and palms used out of doors in Summer, and requiring cool treatment. Of these

one can make an admirable selection, and I have been very successful in growing them. Of course the selection of blooming plants is quite restricted, but the lack of bloom may in some measure be made up by Dracænas and other ornamental-leaved plants. I have as fine Primroses and Cinerarias as any one, while Carnations, Chorozema, Begonia incarnata and Yellow Oxalis are unfailing; and among the less common plants are Cypripedium insigne and the Fall blooming Epiphyllums. The list might be extended, but these, with Winter blooming bulbs, are the chief dependence till April brings the Cactuses and Azaleas.

FLOWERING OF FUCHSIA PROCUMBENS.

BY W. T. BELL, FRANKLIN, PA.

Josiah Hoopes, in April number, states that they have been unable to flower this plant.

I have a plant of it in a four-inch pot, that is now in bloom, and I must say that I am disappointed in the flower, which is quite inconspicuous. The tube is light greenish yellow. Sepals green, shaded with brown. Corolla none. Stamens, eight in number, with red filaments, and violet-colored anthers. The calyx has a ringent appearance, one limb turning back flat on the tube. The flower is curious, at all events; and the plant has a very pretty habit of growth, propagates readily, and is easily grown.

EDITORIAL NOTES.

PANICUM PLICATUM VARIEGATUM.—It is surprising that this, the most beautiful of all variegated grasses, does not enter oftener into ornamental garden work. It does well in partial shade, where few things will, and is excellent for vases or baskets under trees, or in piazzas for Summer adornment. It bears room culture very well also, and comes in well for Winter window work.

BUTTON-HOLE ROSES.—The *Journal of Horticulture* tells us that in England "the most favorite of flowers for button-holes are tea-scented Roses, and one of the best of them for this purpose is Isabella Sprunt. We observed some charming buds of this the other day in the gardens at Wimbledon House, and we were informed by Mr. Ollerhead that it is regarded as the best of all roses for button-hole bouquets. The flowers are small and perfectly formed, the colors merging from white to creamy buff. As grown in pots at Wimbledon, this rose blooms profusely. Another favorite variety in the rose house at Wimbledon is Madame Trifle. It is trained up one of the rafters. It has the free-growing and flowering properties of Gloire de Dijon, and is considered an improvement on that good old rose; no small recommendation."

FLOWERING CYCLAMENS.—We like to make note of good specimens of culture. It would be pleasant to know that some of our readers could beat the following, from the London *Journal of Horticulture:* "Mr. Richard Maries, nurseryman, Lytham, has sent us a photograph of a plant of Cyclamen persicum. The plant, which is in a 7-inch pot, has more than a hundred flowers, and is similar to the plants usually exhibited at the London shows. The plant has never been allowed to become too dry when at rest. Mr. Maries considers over-drying the cause of much injury in Cyclamen culture. The variety submitted is pure white, and evidently belongs to a good strain."

PERMANENT IVY FOR BOUQUET VASES.—A pretty fashion is coming into existence of having ornamental flower pots made like bouquet stands, and planting ivy therein. In an ordinary bouquet stand ivy would not grow, as there must be a hole somewhere to let the water out, or the ivy or any other plant will not grow; but a smaller inside glass is used to hold the water for the cut flowers, and around this is the earth for the ivy to grow in. The effect of the growing border of ivy round the cut flowers is very pretty indeed.

PLUMBAGO ROSEA.—This old-fashioned warm greenhouse plant is one of that kind which is very hard to kill. We have noticed it to hold its own for years, when men have been employed who should know their business, but under whose hands half one's stock would disappear in half a dozen years. Not only for this, but for a persevering, free-blooming character is it desirable. As fast as one spike is out, another bud pushes to take its place. A *Garden* correspondent finds the following successful culture: "Though much has been written against the use of this plant for furnishing cut flowers, there can be but one opinion amongst those who know it well as to its general decorative properties at this season of the year—whether associated with fine-foliaged or with flowering plants—its light

and graceful habit making it specially suitable for that purpose. We have some plants of it here in 32-sized pots raised from cuttings put in last spring, and each plant is now a mass of bright pinkish-salmon-colored inflorescence, borne on five or six main stems which branch and ramify in all directions. These plants were potted in a mixture of loam and leaf-mould, to which was added a sprinkling of silver sand, and they were kept in the stove for a short time after they were potted. As the season advanced they were moved to the front shelf of a late vinery, and after being there for a time they were again moved to a small span-roofed house, in which no fire-heat was used. Here they received all the light and air possible, and remained till cold weather set in, when they were removed to the top shelf in the stove, and at once commenced to throw up their flower stems. The shoots were stopped several times during the Summer. After they were taken out of the stove, they would have done equally well in an ordinary frame, provided they had been gradually hardened by exposure to the air. It is, of course, easy to grow much larger specimens if required, but I find these young plants much more handy and compact for general purposes than older plants cut back and grown on again in Spring. I may add that if the old flower-spikes be left undisturbed after blooming, their points will continue to lengthen and produce a second crop of flowers early in the Spring; but, of course, these will not be so fine as on the first occasion. A little weak manure-water given occasionally will assist them."

The Beauty of the Eucalyptus.—Some of the Eucalyptus have beauty as well as fragrance. The annual report of the Director of the Melbourne Botanic Garden, in referring to improvements in portions of the grounds, says that several specimens of the gorgeous scarlet-flowering Eucalyptus ficifolia are there planted, and then adds: "This magnificent plant, from Broken Inlet, Western Australia, produces its flowers at a much earlier stage of growth than any other species of the genus with which I am acquainted. Its bloom resembles a ball of fire more than anything else to which I could compare it. I have seen the Flame Tree of Illawarra, and the brilliant scarlet masses of Erythrina laurifolia on the banks of Rewa in Fiji, but neither surpasses the effect produced by the floral display of this Eucalyptus."

Burlingtonia fragrans.—Not only are orchids valued for their rare and singular beauty, but many of them have a delightful fragrance. As the London *Journal of Horticulture* says: "One of the sweetest of orchids is Burlingtonia fragrans; its perfume may be described as that of May blossom intensified. This plant was recently flowering—indeed, it appears to be almost always in flower—in the collection of Mr. Bull at Chelsea. The plant is growing on a block, and its pendulous racemes of delicate blush-tinted flowers are very attractive. It is a most enjoyable orchid, and worthy of a place in all collections of stove plants."

A Fine Head of Thomas Hogg Hydrangea.—The following letter has been addressed to Mr. Robert Buist on account of a very remarkable specimen of "Thomas Hogg":

Philadelphia, May 17th, 1877.

Robert Buist, Esq.:—At the stated meeting of this Society, held on Tuesday evening last, it was, on motion of the undersigned,

Resolved, That the thanks of this Society be presented to Mr. Robert Buist for the truly superb specimen of Hydrangea, "Thomas Hogg," presented this evening, containing six trusses of snow white blossoms, the largest of which measured 16 inches in diameter.

Very respectfully,
A. W. Harrison, *Recording Secretary.*

Maiden Hair Fern for Bouquets.—The *Garden* says: "Some idea of the extent to which Maiden Hair Fern is used in Covent Garden for bouquet making may be gleaned from the fact that Mr. Rochford, of Tottenham, has several large, span-roofed houses entirely devoted to its culture for furnishing fronds in a cut state. The plants are grown in 12-inch pots, and in order to keep up a regular succession, only a portion of them is cut at a time, those which furnish such fronds being subjected to a lower temperature than the rest, by which means the fronds assume a deeper green color, and last longer after being cut than they otherwise would do."

The kind employed is not specified. In this part of the world the common Maiden Hair, Adiantum capillis veneris, is used to some degree, though not to the extent indicated in the above extract, as in England. But it might be more generally employed than it is. By the way, this is one of the best of ferns to use as a window plant.

Falling of Flower Buds in the Camellia.—Among the peculiar experiences of the year in English gardens, is a remarkable dropping of

the flower buds of Camellias, and the papers are busy in discussing the cause. Amongst other papers is an interesting one in the *Gardener's Magazine*. After showing that neglect the Summer before will operate injuriously the Winter following, it says: "It does not follow, however, that the case now before us is to be explained in this way, and we incline to the belief that very many of the collections that have of late disappointed their owners had the best possible attention in the Summer of last year. Why, then, should they behave so differently to their wont? Can it be that defect of solar light is the cause of the disaster? We incline to the belief that herein is a sufficient explanation. The later days of the Autumn and the whole of the Winter, thus far, have been characterized by the prevalence of rain clouds; and it is scarcely exaggerating the case to say that in London we have had but three bright days during the past three months. Light is the life of flowers, although all flowers do not require equal degrees of light for their full development. The Camellia indeed is a shade-loving tree, and we occasionally meet with surprisingly large, healthy and productive Camellias in old houses that have by long neglect become grass green above, and muddy below, and rickety everywhere. The coating of moss and confervæ on the glass, and even the black bars formed by the absorption of dirt in the laps, may be beneficial to the trees in Summer, as affording a little shade, and giving the light the greenish tinge it has in the shade of large trees, where Camellias grow naturally. We should like to know how Camellias have flowered in dirty old houses in the past season, and probably some of our correspondents can inform us. If deficiency of light is the cause of the failure we now deplore, the old houses should be in the worst plight, and the newer houses should present a marked contrast in favor of large glass and good carpentry. To know the cause of a disease is said to be half a cure; we cannot dispel the rain cloud, we cannot produce artificial sunshine; but we may reasonably inquire if, in the case of Camellias, there is this season any difference in the flowering of those that are in light and airy houses, and those that are "boxed up" in tumble-down houses where the woodwork is heavy, the squares small, and the glass more or less coated with black soot or green vegetation. While we incline to the belief that lack of light is the principal cause of the falling of Camellia buds, we do not claim that we have disposed of the question. We prefer to place it before our readers, asking them to assist in its solution. It is more than a horticultural question; it is one of considerable commercial importance."

Bouvardia jasminiflora.—This white Winter flowering Bouvardia has not yet displaced the Vreelandi, or Davidsoni in our Winter gardens, but judging by the following from the *Garden*, it must be growing in estimation in England: "A house in Messrs. Low's nursery, containing many thousands of plants of Bouvardia jasminiflora, will soon be a sight worth seeing. Many of the blossoms have already expanded, and multitudes more are fast opening. These plants were struck from cuttings obtained when the last of the Autumn flowering plants were stopped; they were inserted in three-inch pots, and when well rooted were shifted into five-inch and six-inch ones, in which they are allowed to flower. Their shoots were stopped four times during the Autumn and Winter, and plants treated in this manner become dwarf and bushy, and bear abundance of healthy bright green leaves and a profusion of fragrant blossoms that forcibly remind one of those of the white Jasmine.—C.

Portable Hot Water Boiler.—Good, portable hot water boilers, ones that can be easily shifted about from place to place, have not been common. We note that one exhibited at the Centennial by Smith & Lynch, of Boston, received from the judges the following award, which is highly creditable:

1. Saddle shaped boiler with good sized fire box, the interior surface of which is furnished with a series of deep, narrow water cells, projecting towards the fire, giving large amount of fire surface, insuring prompt and efficient action and consequent rapid circulation of water. Construction simple, strong and portable; amply supplied with fittings which are readily adjusted; an excellent heater. 2. Adaptability to secure a combination of hot water, and flue heating, thereby economizing the products of combustion.

W. D. Brackenridge, *Signature of the Judge.*

Approval of Group Judges.—George Thurber, William Saunders, F. Pentland.

Francis A. Walker, *Chief of the Bureau of Awards.*

Given by authority of the United States Centennial Commission. A. T. Goshorn, *Director General.* J. R. Hawley, *President.* J. L. Campbell, *Secretary.*

We give in this instance a copy of the award, with the manner of making it, as an illustration of the vast superiority of the American system of judging, as inaugurated at the Centennial, over all plans in previous existence. Under the old style all we should have known would be that Smith & Lynch "took the gold medal," or "the $100 premium." But here we know just *why* it was given, and we fancy S. & L. would not sell that award for a hundred gold medals.

NEW OR RARE PLANTS.

New Rose, Queen of Bedders.—A good bedding rose should, above all other good characters, bloom freely. Mr. Noble, of England, in the above variety, thinks he has just the thing. He says: "Its inflorescence may be imagined when it is stated that a plant 18 inches high had 84 buds and expanded roses upon it on the 6th of September, 1876, and flowered continuously from June until November, on the 20th of which month (1876) it was still in bloom."

Hydrangea Thomas Hogg.—We have from Mr. John Cadness, Flushing, a specimen of this new variety of the Chinese Hydrangea, which was a foot across. It is not only a white variety, but is every way superior to the old one.

Platycerium Willinckii.—We reproduce, in an abbreviated form, from the *Gardener's Chronicle* of March 6th, 1875, Mr. Moore's description of this new Fern: "This fine and very distinct species of Stag's-horn Fern is a native of Java, whence it was introduced by M. Willinck, of Amsterdam. Like its cogeners it is epiphytal, and protects its rootstalk by the broad, roundish imbricating bases of its sterile fronds, which in good specimens are six inches across. The sterile fronds are erect and slightly spreading, the fertile ones, which are produced in threes, fall straight down to a length of two and a half feet, are quite narrow in all their parts, and forked. The fronds appear to be less coriaceous than those of the other species known in gardens. As a species this plant is thoroughly distinct from any of those at present known. With regard to its general habit, it groups with P. grande, P. Wallichii, P. biforme, in having long, pendent fertile fronds cut into many narrow furcate divisions, and very broad, erect, sessile barren fronds, with a lobate margin; but it differs entirely in its fructification. This novelty will prove a welcome addition to the few well-marked and very ornamental species of Stag's-horn Fern already familiar in our hothouses." It received a Certificate of Merit from the Royal Botanic Society, June 16th, 1875, and a First-class Certificate from the Royal Horticultural Society on August 4th following.—*Veitch.*

A Double White Bedding Lobelia has originated in Prussia, and is now being offered under the designation of *Lobelia erinus erecta fl. albo plena.* It is said to range from three to four inches in height, to be dense in habit, and to flower abundantly in the open ground; but as yet no opportunity has been afforded for determining its value for bedding purposes in English gardens. As all the white flowered lobelias that have been introduced up to the present moment have proved worthless, some amount of caution should be exercised in planting this new comer, until it has been subjected to a careful trial; more especially as the double form with blue flowers is of no value whatever in the flower garden.

FRUIT AND VEGETABLE GARDENING.

SEASONABLE HINTS.

Raspberries and blackberries should have their suckers thinned out, as weeds, as they grow, permitting only those to remain that will be wanted next year.

Strawberries should be assisted to make strong-rooted runners—good and loose soil placed near where the runners are, and if these are slightly covered, all the better.

Where new strawberry beds are required to be made that will bear well the next season, the very first runners of the season should be selected, and layered into small pots. In about three weeks they should be cut from the parent

stem, and left to a separate and independent existence for a few days. After preparing the ground properly for their reception, the pots should be well watered and the plants turned out into the spots designed for them. They will then grow finely the present season, and bear surprising crops of fine fruit the next Spring.

A warm sandy loam is the best for a strawberry bed. A low and damp one is of all the most objectionable. Though warm and dry in one sense, it should be rendered capable of retaining moisture in the dryest weather, and this can only be perfectly accomplished by draining and subsoiling. If the latter is done three feet deep, all the better.

Unless in very sandy soil, a very heavy dressing of stable manure is objectionable. Wood ashes, ground bones, and matters of a mineral nature are more advantageous.

Of late years there does not seem the same attention to fruit there once was. The "canning system" has had much to do with this. But no system of preserving strawberries is equal to the natural fruit. We are pleased to find that many who can afford it are again raising them under glass.

Strawberries for forcing are treated in pots, as we have already described; but instead of being transferred to the open ground, when well rooted in the small pots, are re-potted into five or six-inch pots, and these latter plunged in the ground to their rims in a spot the most favorable to strawberry growth.

After having grown well, and when they show signs of having formed a good strong crown, they are to be taken out of the open ground and gradually ripened by withholding water,—taking care that it is not done so suddenly as to make the plants wither, or they will suffer much. Towards the Winter they can be set in a cold frame and covered with dry leaves for a slight protection from the frost till wanted. Many commence to force at the beginning of the new year, when they are brought into the greenhouse and must be set near the glass. A high temperature is fatal. 45° to 50° is sufficient for a few weeks, and 55° to 60° when the fruit is fairly set. They love to be frequently syringed, and guarded against Red Spider, which is their greatest pest. Where there is not the convenience of a greenhouse to force strawberries, they may be had a few weeks earlier than usual by making a piece of ground slope to the south-east, planting out as already described for garden culture, and then setting a glass frame over them. The nearer the frame and glass can be brought to the soil, the better and earlier will the crop be. Protecting from frost in Winter also adds to the earliness of the crop. The earliest variety to be had in the locality should be employed.

Our hints for the last month will, in a great measure, bear a re-perusal at the commencement of this.

Sow Endive, and towards the end of the month transplant in rows. They should be set out in rows eighteen inches apart, and one foot from each other. The soil can scarcely be too rich for them. Seed may yet be sown for a later crop.

If Brocoli is a desirable vegetable, it may be had all through the Winter by being sown now. In about four weeks plant out into rich garden soil. On the approach of frost, take up the plants, with a portion of soil adhering, and pack them closely in a warm and somewhat damp cellar. They will continue to grow, and produce nice heads.

Beans may be sown up to the end of the month. For winter use, the White Kidney is very popular, although other kinds are very extensively grown for the same purpose.

In some families, large, full-grown Carrots are objectionable. Seeds of the Long Orange sown now on rich sandy soils, form neat and desirable roots before Winter. The same may be said of beets.

Cucumbers for pickles are also sown about this time. They usually produce a greater number, and consequently smaller fruit, than when sown earlier. The Short Prickly is the kind to employ.

The main crop of winter Cabbage is often planted the first or second week in July. In planting, if the weather be dry, it is a good plan to make the holes before planting and fill up with water; after soaking away, the plants may be set in, and they seldom wither afterwards, though without rain for a month. Another and more expeditious plan is to have the plants ready with their roots in a pan of water. They are then set into the hole at the time it is made. The water adhering to the roots then gives to the set out plants the advantages of puddling.

Celery we have spoken of last month. The remarks are yet applicable. See Communications on Celery, page 70, Vol. II., and page 356, Vol. III. They will be found of much value to the amateur.

COMMUNICATIONS.

THE BLENHEIM PIPPIN APPLE.

BY CHARLES DOWNING.

The Blenheim Pippin enquired about in the May number of the *Gardener's Monthly*, by S. M., is a well-known English apple, and valuable where it succeeds, which it does in this latitude and farther North; the tree is a vigorous grower, and forms a very large spreading head; it is not an early bearer, but when established, bears abundantly alternate years, and often a moderate crop the intervening years; the fruit is large to very large, roundish oblate in form; color deep orange, covered over half or more of the surface with rich brownish red, often mixed with russet; flesh whitish, a little coarse, tender, juicy, rather acid at first, but when in perfection has a rich vinous flavor slightly aromatic; it is an excellent cooking apple, and a good market variety; it ripens from November to February.

There was a mistake as to this variety and the Blooming Orange being distinct, in Downing's second revised edition of 1869, which was corrected in the first appendix to that edition in 1872. It can be had of most of the leading fruit nurseries.

THE BLENHEIM PIPPIN.

BY T. T. LYON, SOUTH HAVEN, MICH.

In reply to the query of S. M., of Painesville, O., in the May number, respecting this apple, I will state that what is now known as Blenheim Pippin, and described as such, in the appendix to the latest revision of Downing's work on fruits, is identical with that described in his earlier editions as Dutch Mignonne. I received cions of it from Mr. Downing about 1850, which have now been many years in fruit. I esteem it highly as a large and beautiful culinary fruit for late Autumn and early Winter; but rather coarse and acid for the dessert. The tree is very vigorous and reasonably productive; but bears rather lightly while young. It cannot be said to be an early bearer, but the fruit is uniformly large and perfect, never becoming small from over-productiveness.

The article in the January number is not now accessible, and I am not sure, from recollection, as to the tenor of the description referred to.

THE BLENHEIM PIPPIN APPLE.

BY G. W. THOMPSON, STILTON NURSERIES, N. J.

It gives me pleasure—present and prospective—to reply to S. M., Painesville, Lake Co., O.,—present, because a recent inquiry of mine found such prompt replies; also, the pleasure of helping to sustain the usefulness of our good *Gardener's Monthly*, and the prospect of receiving the thanks of the Ed. G. M.—why that fills the bill. I have had the Blenheim Pippin some time, chiefly in nursery row, and have put it upon trial in specimen ground and hope to be able to report its behaviour.

EDITORIAL NOTES.

Preserving Fruit Trees from Grasshoppers.—We note that a correspondent of a Western paper says that if turpentine be mixed with whitewash and put on the stems of trees in the Fall, there will be odor enough to last all Summer, and that this odor will drive off the grasshopper. There are so many poor recipes for all sorts of insectifuges, going round the papers, that one is never sure how much there may be of value in any of them, but in this case the whitewash will certainly do some good to the tree whether the turpentine disgusts the grasshopper or not.

Apricots in California.—Apricots have been the special pride of the Golden State, but for some reason are said to be very scarce there this year. It would be interesting to know whether the curculio has found its way there yet. We suppose it will get there one of these days.

Strawberries from Seed.—As showing how easy it is to raise good seedling strawberries, we may say that Mr. Durand, whose name is connected with good varieties, has now in bearing *three thousand* varieties, which he regards as distinct—but which we should think the "protective committee" at Washington would be hard put to describe explicitly so that any one might know whether he was infringing on a patent right or not—and any one of which would be good enough for ordinary mortals. Such facts as these, make the propriety of going into ecstacies over a new and promising variety, very doubtful. If good kinds can be produced in such numbers, we shall soon be in the condition of

the new potato men. They raised new kinds for us by the hundred—all of them so good—that there was no great use in selecting any one, and then they took to advertising the seed, so that every one could raise his own best variety. Will it soon be thus with the strawberry?

By the way, we notice that Mr. Durand advertises that he received the "First Premium" at the Centennial Exhibition, but he has been led into error. There were no premiums awarded at the Centennial for strawberries. Mr. Durand's fruit received very high credit, more so, indeed, than any "premium" would give him, but then other strawberry exhibitors received quite as high awards as his—say for instance, his fellow-citizen, J. H. Withington, of South Amboy. There was honor—high honor to many—but "first" to none.

Apples for England.—So late as the 4th of May, the "Indiana," of the American Line of Steamers, from Philadelphia to Liverpool, took out 1,500 barrels of apples. Some of these were of the celebrated Pennsylvania variety, "Smoke House," which is said to be highly appreciated in England. In past times they seem to have known nothing of American apples except "Newtown Pippin," and seem to be astonished at the superiority of other kinds.

The Northern Spy Apple in the West.—It is said that the Northern Spy is fast outrunning all other kinds in popularity in Iowa and Michigan. It is longer in coming into bearing than most kinds, but generally brings more in market than the others, and this perhaps, may help balance accounts.

Best Stock for the Early Richmond Cherry.—The *Western Farmer* says the Early Richmond in Iowa bears most heavily and earlier on its own or Morello stock, but ultimately most fruit on the Mahaleb. This is good rule for Iowa, where the Mazzard does not do well. Wherever the Mazzard thrives, it is by far the best stock for the Early Richmond.

The Gros Colman Grape.—This variety has never achieved great popularity with American hot-house grape-growers, but we note that in the December reports of Covent Garden (London) Market, it seems to be the general favorite, and to bring higher prices than all the varieties of that season. What say Mr. Huidekoper and our other friends who are interested in experimental vinery culture?

Size of Pot-raised Pears.—In England the Dwarf Pear is not uncommon as an orchard-house fruit. Of some remarkable fruit the London *Journal of Horticulture* has this to say:—"Mr. Hawkins, gardener, Ewenny Abbey, Bridgend, Glamorganshire, tells us that he grew last year in pots Pitmaston Duchesse Pears weighing 27 ozs., Durandeau 21 ozs., and Doyenne du Comice 17 and 18 ozs., that fruit being of excellent flavor. He wishes to know if other gardeners have obtained fruits as fine or finer."

Sending Peaches to Ireland.—Mr. J. H. Parnell, of Alabama, who did himself so much credit in the exhibition of the very large peaches of the Early Beatrice variety, at the Centennial last year, has astonished the residents in "Great Britain and Ireland" by sending peaches from Alabama to Ireland in first-rate condition. The Irish *Farmer's Gazette* says they were in just as good condition as if pulled fresh from the tree. Mr. Parnell brought them in a box, which is thus described:—"The contrivance consisted of a large, square bin or deep wooden chest, strongly put together, and lined with zinc; within this was another large chest similarly lined, a space of some 8 or 9 inches intervening between the inner and outer chest, which was filled with ice. In the inner chest the peaches were stored, not in separate trays, layers, or anything of the kind, but heaped as you would stow potatoes in a pit; and there they lay, a rosy and happy looking mass, in the best possible condition."

Importing Early Vegetables.—We have our "South" to keep us in early vegetables. England is finding one in Algiers. The *Garden* says:—"Large quantities of Green Peas are now being received in Covent Garden from the warm and sheltered parts of France, and also from Algeria, whence they are consigned by way of Paris; and during the past week we have noted gangs of Pea-shellers almost as busily engaged in that work as in the Summer time, when English-grown Peas are abundant. It is, too, a noticeable fact that the French Peas are far superior to those that come from the warmer climate of Algeria. The succulent Long White Turnip of the Paris market gardens, together with salad vegetables, is also now being sold by auction, daily, in large quantities. French and Channel Islands Asparagus is abundant, and comes packed in flat lath boxes 2 ft. wide, 15 in. deep, and about 3 ft. in length. A few Globe Artichokes and Cardoons come from Marseilles, and now

and then a batch of fresh, though as yet pale-colored, Tomatoes."

THE OYSTER PLANT. — Mr. Worthington G. Smith is not satisfied that our Salsify should rob one of his dearly beloved funguses of the name "Oyster Plant," and this is what he says to the *Gardener's Magazine* about it:—"In your article on 'Tap-rooted Vegetables' (p. 155), you describe two 'vegetable oysters,' one the Salsify, 'sometimes' termed the oyster; the other the Scolymus, which you term the 'true vegetable oyster.' You have therefore 'two Richards in the field,' and allow me to say both counterfeit. The only old, original, and true 'buttery bivalve,' or 'vegetable oyster,' is the ancient and time-honored mushroom, Agaricus ostreatus, a melting and delicious edible fungus found on rotten elm stumps in November. Whatever the flavor of your two plants may be, the tap-root in Salsify and Scolymus would suggest the more appropriate names, at present unoccupied, of the 'vegetable periwinkle' and the 'vegetable whelk.' The true 'vegetable oyster,' Agaricus ostreatus, has no tap-root or stem; it is all flat, as it should be." After all, there are a good many kinds of animal oysters, and why may there not be of vegetable as well. Epicureans say the English oyster is a coppery sort of thing, and pronounce the American *the* oyster. So it comes down to but one oyster after all, and so may *our* oyster plant follow the same verdict.

FORCING ASPARAGUS.—The poor stuff called canned vegetables, will never compete with nice fresh ones, just cut fresh from the plant, and particularly is this so with Asparagus; and then it forces so easily. A correspondent of the *Garden* gives his experience, which we give on the principle that what a man says he has done, is worth a whole chapter of "how you may do it:"—"Asparagus may be obtained a month before it is ready out-of-doors as follows:—About the middle of February place some movable wooden frames over a permanent bed of it, and with a few barrow-loads of warm manure and leaves, make up a lining all round the bed, and cover its surface with dry hay. Then put on the lights and keep them closed for three weeks, when the heads will begin to appear. The hay should then be cleared off, and a little air given on every favorable opportunity. Under this treatment I cut my first Asparagus on March 20, and since that date I have cut several hundreds of beautiful heads, and still they promise to be sufficiently abundant to keep up a good supply until the outdoor crop is ready. By this plan the bed, which does not experience any disturbance, will last a great number of years, provided its produce is not cut too late. Cutting should cease and the glass be removed directly the out-door crop is ready."

FORCED FRUITS AND VEGETABLES.—On the 20th of May we received a pair of cucumbers *twenty-one inches long*, and a few tomatoes *eleven inches round*; the former so tender and crisp that we were tempted to send one to the venerable author of "Buist's Kitchen Garden Directory," to test the sincerity of his receipt for cucumbers, "Slice, pepper, salt and throw out of the window!" but our appetite saved us from this great sin. The tomatoes were so solid and delicious that we do not wonder the London papers say, "the skill of our best gardeners in forcing fruits and vegetables has beaten the canned articles which are falling into disrepute."

Mr. Paget, the excellent gardener to Hon. J. D. Cameron, of Harrisburg, who sends these, also writes:—"I have not cut less than two per day, since the 20th of November. I picked twenty-five ripe peaches on the 17th inst.; more ready now. There is no peach like Hale's Early in my estimation; but I must include Old Mixon, Mountain Rose and several others, for good forcing habits. I have picked one basket of strawberries every two or three days since March 18th. Downing's and Triomphe de Gand are the kinds."

SCRAPS AND QUERIES.

STOCK FOR THE CHERRY.—S. says:—"What is the hardiest stock to work the cherry on? Can I work the cherry on stocks that will make them dwarf, and still have them hardy?"

[The hardiest stock is believed to be the Morello, and it dwarfs somewhat. The Mahaleb is also considered hardier than the Morello, but it grows the grafted plant nearly as strong as the Mazzard for all practical purposes. When grown in clover, we have seen the Mazzard stock pretty successful, even in the cold Northwestern States. It is quite likely some of our native cherries would make good hardy dwarf stocks, but we know of no reliable experiments.—Ed. G. M.]

GOOSEBERRY WORM.—J. W. M. Exeter, N. H., writes:—"I have some nice plants of the Down-

ing Gooseberry, which have promised fruit two or three years, but the worms have spoiled *every berry*. Can you give me a remedy through the June number of the *Gardener's Monthly*, and oblige a subscriber?"

[We know of no insect that injures the *fruit* of the gooseberry hereabouts, to any material extent—though occasionally a "stung" fruit may be noticed. If any have had this unfortunate experience, and will give us something definite, it would be very acceptable. We should suppose gathering the berries infested with the egg, and destroying them would keep the insect down.—Ed. G. M.]

Trees Injured by Oil.—We have the following very important communication from Mr. G. R. Dykeman, Shippensburg, Pa.:—"Last Fall I painted with linseed oil, all my tree-bodies in one field—say 600 peach, 200 apple, some pear, cherry, plum, and 100 quince. To my surprise, I find I have killed all the large peach trees, five years planted; as far as I have examined, not one escaping that was painted; the other trees look all O K. Some peach trees in other places, were painted with refuse lard and linseed oil; they are all dead, as far as examined—say about two hundred more. I set out this Spring, 300 peach, 100 plum on peach, and painted from root to above bud with lard and linseed oil; have gone over them with soap, and scoured it off; will pass over them again to-morrow. Can I do any better? I notice on the apple, where a side limb was taken off, the bark is killed back from the cut, about half an inch all around. Had I better take the oil off the apple, cherry, plum and quince? I enclose directed envelope; please reply and inform, and if possible, afford some relief to me.

"P. S.—I suppose I did not state the reasons for greasing the trees. It was to keep the rabbits off, as well as to kill any bugs that happen to be around. Will you please make enquiry in the next *Monthly* for similar cases. I will write again, later in the season."

[We know of no experiments with peach trees, or stone fruits, as it is rare that the white scale infests them, which is the enemy sought to be destroyed by the experiments with linseed oil, we have noted in our magazine. In those cases, hundreds of apple and pear trees were painted in March, now over two Summers ago, and it is impossible to find healthier trees than they are to-day. The precise reason, therefore, why Mr. Dykeman's trees were injured, requires very close examination.—Ed. G. M.]

May Beetles on the Raspberry.—F. P. W., Passaic, N. J., writes:—"I send you herewith some specimens of a beetle which has appeared in this locality in large numbers, and is making sad havoc with the raspberries of all kinds. Some of my Doolittle's are under bare-poles, they having stripped them of leaves and fruit just formed, thus destroying the crop for this year. As they have only just appeared, we may be able to check their ravages in some measure, before they have destroyed everything. They stick so tightly that they cannot be shaken off, and they fly and make a noise similar to a June bug. We have put sulphur upon the bushes, with apparent success, but do not know how it will be in the end. I thought best to inform you, as you will probably know what the pest is, and be able to publish the best method for its prevention and destruction, and thus give a timely warning to those whom it has not yet troubled. Any information on the subject would be thankfully received by myself."

[These are Lachnosterna tristis, a near relative of the L. quercina, or common May Beetle. A drove of turkeys let through the raspberry plantation, would help to keep them down, and the next best thing is hand-picking by children. With all this, they will no doubt ravage faster than the remedy will follow, but it is the best we know.—Ed. G. M.]

The Prickly Comfrey.—E., South Lexington, Mass., writes:—"I have purchased a thousand sets of the Prickly Comfrey roots, and as I see your name connected with it in the public papers, I should be very much favored if you will tell me whether it has any great value?"

[As a matter of opinion, it would perhaps have been wise to have been satisfied of its value before purchasing; but perhaps it is best to first secure the hare, as the famous cook-woman says, before you cook him. In regard to our experience with it, it is correct as stated in public papers, that the writer of this has had it growing in his flower border for a number of years, and though we can say that it is pretty, we think there are other things more beautiful; and if our correspondent had bought a thousand Geraniums—say of the General Grant—or even a thousand Petunias, we think he would have had a better show for his money than the Prickly Comfrey will make.—Ed. G. M.]

FORESTRY.

COMMUNICATIONS.

EXPERIMENTS IN TIMBER RAISING IN KANSAS.

BY REV. L. J. TEMPLIN, HUTCHINSON, KAN.

The region of country lying between the Missouri River and the Rocky Mountains is generally a vast, treeless plain. It was formerly known as "The Great American Desert," but is now more properly called "The Plains." So far from being a "desert," it is one of the most fertile portions of the continent, and it is rapidly filling up with an intelligent and industrious population, who are literally making it "rejoice and blossom as the rose." One of the great drawbacks to the settlement of this country is the great scarcity of timber. While, so far as subduing the country and bringing it into cultivation is concerned, it is far preferable to have no timber, than to have the land encumbered with it, as much of the eastern portion of the United States was. Still every man who comes here to live, feels the need of more timber. The questions that face the immigrant at the outset are, can timber be raised, and if so, have the people the enterprise and patience to plant and cultivate? These questions are being rapidly answered in the affirmative. Most kinds of timber adapted to this climate grow with a rapidity that is astonishing to an Eastern man. But in the beginning all was in doubt as to what would succeed and what fail. All planting was, therefore, largely an experiment. But such experiments are often costly and tedious, and if every man has to make them for himself, the tendency is to discourage and hinder the work to a considerable degree. In order to aid in this matter, some of the railroad companies that had large land grants to dispose of, have undertaken the work of testing the various kinds of timber as to its adaptation to the soil and climate of this region. For this purpose, experimental nurseries have been planted at various points along the routes and in the different kinds of soil. The A. T. & S. F. R. R. Co. established four of these experimental stations, as follows: at Hutchinson, 180 miles west of the State line and 1,500 feet above the level of the sea; second, at Ellenwood, 215 miles west of the State line and 1,760 feet altitude; third, at Larned, 246 miles west and 2,035 feet elevation; and fourth at Spearville, on "Dry Ridge," 283 miles west and 2,478 feet altitude. This enterprise was begun four years ago, this Spring, on freshly broken sod. I am not able to give any report of results at any of the stations, except the one at this place—Hutchinson.

The experiments at this place have produced important results. There have been failures and partial failures, as well as successes; but the failures are as important in the information elicited, as the successes. The past year has been the most trying on arboreous vegetation that has ever been experienced since settlements began. The locusts came down on us about the first of September, destroying a large portion of the foliage of young trees. This was followed by a very warm, pleasant Fall; a new growth of leaves was the result. These were caught by a freeze of unusual severity for the season, about the first of November, and as might be expected a great many trees were killed and others injured. The amount of injury or exemption from it was not in every case an indication of the hardiness or otherwise of the tree, but rather of the amount of damage they had sustained from the insect depredators. Looking through the experimental grounds, a few days ago, I made the following estimates of losses:—Cottonwood, Black Walnut, Negundo and Soft Maple, uninjured; Osage Orange, one-quarter killed to the ground; Honey Locust, one-half killed to the ground; Catalpa, Ailanthus and Peach, three-quarters killed back; Elm and Ash uninjured. These are the principal kinds under cultivation. The Chestnut and China tree have been discarded, as also the Black Locust, as unworthy of further trial. Many fruit trees and small fruits were killed or seriously injured by the unfavorable circumstances.

Thanks to whom thanks are due, for the privilege of reading the *Monthly*—I feel like saying the "Prince of Monthlies"—this year. Will try to make return in some "notes" during

the busy season. We have had a backward Spring, but rye has been in head for two weeks, and wheat is now heading out. The locusts, which hatched out in vast numbers have nearly all disappeared. Prospects are flattering for a splendid crop.

EDITORIAL NOTES.

The Yellow Pines.—The investigations of Prof. Sargent show that in all the large lumber centres—Wilmington, Baltimore, Philadelphia, New York and Boston—"Yellow Pine" is exclusively applied to the timber of Pinus australis (Pinus palustris of Lambert). Much of the confusion in "Yellow," perhaps, arises from the fact, that the prevailing "Yellow Pine" of old lumbermen, was P. mitis, which is now rarely (if ever) in market.

Forestry in Massachusetts.—Some of the Western States encourage planting by legislation. Nebraska has its "Arbor Day," when premiums are given to those who plant out the most trees. But Massachusetts is planting by individual exertion, and among these public spirited individuals, few have done more to encourage the practice successfully, than Prof. Sargent and Mr. C. S. Hopkins.

The great difficulty has been in getting native trees for planting. The habit of running to Europe for everything, gave American nurserymen no chance. If a nurseryman raised a hundred thousand trees, the chances were that he would sell but five or ten thousand. The rest having to be thrown away, the prices had to rule high; with anything like a certainty of selling regularly, the prices would rule considerably lower. American planters are beginning to feel the force of this, and by ordering beforehand, inquiring, and other symptoms of encouragement, find that they can be well served by their neighbors around them.

Mr. Hopkins, in a recent letter in the *Register*, on New England Forest Planting, has this encouraging sentence:—"We count our acres in these young trees by thousands. The few plantations on the Cape containing a good variety of young trees, depended mainly upon importations from England for seed and seedlings. Fortunately at the present time, by the foresight and energy of our native nurseries during the past few years, it is no longer necessary to cross the Atlantic to secure at low prices the basis of our future forests, and as a consequence, it is hardly possible for the most sanguine to overestimate the great improvement by tree planting, that is sure to occur on the Cape within the next ten years. Our people generally, are alive to the fact that whether they own one, or one hundred acres of land, a few years will double its value by planting half in trees."

Paper from Cactus.—The *Greeley Tribune* tells us that the manufacture of paper of excellent quality from the species of Cactus growing in great abundance in the Mojave Desert, has recently been tested at the Lick paper mill, at San Jose, by parties interested, who propose, if possible, to obtain control of all the paper-mills on the coast, and set them in operation on this material exclusively. The Cactus paper is said to be very strong, and the supply of material unlimited.

Pear Timber.—We learn from the *Derby Mercury* that during the late storm, a large Pear tree in the orchard of Mr. Robert Hay, Chase Farm, Ambergate, was blown down. Mr. Hay says that when his great-grandfather took possession of the place in 1750, or 127 years ago, it was a much larger tree than when he (Mr. Hay) was born, in 1800; and since then it has lost several large limbs in exceptionally high winds. Mr. Hay believes it to be considerably over 300 years old, and the dimensions taken to-day, as below, will to some extent bear out his assertions. The tree has been a great favorite with the old gentleman, and last year it bore a large crop of very good fruit. It had two trunks, dividing about 3 ft. from the ground line. The measurements are —Circumference at ground, 9 ft. 6 in.; at 3 ft. above ground, 11 ft.; of largest trunk, 6 ft. above ground, 6 ft. 6 in.; of smaller trunk, 6 ft. above ground, 5 ft. 6 in.; of largest bough, 4 ft. 6 in.; next largest bough, 4 ft.; height from ground to top, 45 ft.

[The above is from the *Gardener's Record*. In the vicinity of Philadelphia, Pear timber is in great request by mill-wrights.—Ed. G. M.]

Timber Conifers in Massachusetts.—We give below, the following letter of Mr. J. W. Manning, to the *Ploughman*, because of the implied value of the Scotch Pine as a timber tree in Massachusetts. We suppose there must have been sufficient observation of its growth in Massachusetts to warrant what is said of it there, but it is proper to say that in many other parts of the Union

where it has been tried, it is by no means popular. But we can endorse all that is said of the White Pine. We are not sure, but the Larch is nearly as uncertain as the Scotch Pine. In many places the wood seems to be excellent, but there are others where it is nearly worthless:—

"The premium offered by the Massachusetts Society for Promoting Agriculture, for forest planting, seems to stimulate the inquiry where the Scotch Larch and Scotch Pine can be procured. Abundant information is offered in the advertising columns of the press, so that none need be at a loss where to procure it.

"No more evidence is required as to the adaptability of the Scotch Larch as a forest tree. Specimens of this tree are to be seen in nearly every town in the State. We fully believe that 50 cords or more of fuel may be grown in 25 years from the seed of this tree, per acre, on good land; as it is easy to prove that that rate of growth has been made on poor land. It is literally a tree adapted to poor soils.

"A similar remark applies also to the Scotch Pine, for specimens in full vigor are not rare even on very barren soils. We would also urge the claims of the White Pine, for it is growing in luxuriance on so many dry and barren places. It grows freely in gravel pits, where nothing called soil remains.

"These three Conifers make a complete list of all that are desirable to be used for planting in the forest soils of Massachusetts. Other varieties may be good, but none are better. Let these be planted by the million, for twenty years will pass just as quickly as though they were not planted, and if planted, there will be a handsome return to show for the expenditure in our advancing years, when we seek some memorial of early labors.

"Growing specimens may be seen from the railways and highways of the country, and the success of transplanted evergreen and deciduous trees, can readily be ascertained, and thereby each for himself can, from the growth of the past, calculate upon the growth of the future.

"We trust that our few remarks may serve to stimulate some to attempt tree planting, and we hope that the planting of trees on lands adapted for their growth, will pass through the land as one form of a revival from the past season of depression."

Forest Seedlings.—The causes that have contributed to the loss of evergreens directly from the forest are the lack of root fibers, which are naturally few in many species of coniferous seedlings, especially appertaining to those that are forest grown. These roots are more or less mutilated or left in the soil when the plants are pulled, as they usually are, instead of being dug, and with more or less exposure to the sun or drying winds, after being taken out of the ground, and before packing.

These forest-grown seedlings, as stated in the article referred to, require shade, and with this and other necessary precautions, the loss of plants is generally so great as to deter professional nurserymen from planting this class of evergreen very largely for a series of years.

Nursery-grown evergreens should not be classed in the same category as forest-grown seedlings, from the fact that the care and cultivation given to nursery-grown seedlings, induce a better root growth, and these roots are mostly preserved by being dug, instead of being pulled out of the ground. Hence, these nursery-grown seedlings, after an exposure of one or two years to the sun, before being taken out of the seed-beds, may be *safely* transplanted into beds or nursery rows *without* shade.—*Prairie Farmer.*

The Value of Timber in the Scotch Highlands.—A recent English journal says:—"An illustration of the value of timber on waste lands in the Highlands is afforded by a sale of wood which took place on the estate of the Earl of Cawdor, in Nairnshire, the other day. In 1820, two hills on the Cawdor property, of about 800 acres in extent, and of almost no agricultural value, were planted with fir and other trees, and after successive thinnings, the sale of which realized large sums, the remainder of the wood has just been sold off for the sum of £16,000 ($80,000). The sums realized for the wood on this waste land during the fifty years is stated to be equal per acre to the return for the best arable land in the country."

The Nettle Tree, Celtis australis, although of moderate dimensions, furnishes a timber of great commercial value, and the slender, flexible branches are in great request in many parts of Europe for whip stocks. In the neighborhood of Udine, according to the German papers, large plantations are now cultivated, actually tilled, and manured. The trees are planted about six feet apart, the lower branches being trained off, and in ten years the trunks attain a

diameter of six to eight inches. The wood from these plantations is fine-grained, is easily cleft, and, being of a beautiful yellow color, fetches a higher price than the ordinary quality. In Istria this tree is commonly planted in the squares and near churches. In Moschenizza there is a tree with a trunk five feet in diameter at the base; and in Gemino there is one six feet in diameter, supposed to be a thousand years old.—*Gard. Chronicle.*

Forests of Sweden.—The principal part of the timber of the Swedish forests, according to the *Chronique de la Société d'Acclimatation*, is furnished by the Scotch Pine and Norway Spruce Fir. The White Birch is also widely diffused and abundant in that kingdom. The Aspen and the Alder, the Elm and the Lime are also common, and attain large dimensions in some districts. The timber of the Spruce and Silver Fir is used in the construction of houses, ships, &c.; moreover, they furnish tar, and the wood reduced to a pulp is employed in the manufacture of paper. Balks and planks of these two kinds of timber are largely exported. Birch-wood is chiefly consumed as fuel, supplying nearly all the coasting vessels in the Baltic. As an example of the extent of trade in this article, we may mention that no less than 25,488,678 cubic feet of Birch-wood for fuel, were shipped from a single port in 1872. The wood of the Aspen is used in the manufacture of matches, one of the most flourishing industries of Sweden.

The European Walnut.—It is well known that Walnut trees sometimes attain prodigious size and great age. An Italian architect mentions having seen at St. Nicholas, in Lorraine, a single plank of the wood of the Walnut, 25 feet wide, upon which the Emperor Frederick III. had given a sumptuous banquet. In the Baidar Valley, near Balaclava, in the Crimea, stands a Walnut tree at least 1000 years old. It yields annually from 80,000 to 100,000 nuts, and belongs to five Tartar families, who share its produce equally.—*Gardener's Chronicle.*

Growing Wood for Fuel.—A Canadian farmer, about twelve years ago, planted six American cottonwood trees, and one silver Abele poplar, on seven square rods. Lately cutting them down and preparing them for fuel, he realized four cords of nice wood. An acre at the same rate would have yielded eighty cords.

Natural History and Science.

COMMUNICATIONS.

NOTES FROM YUBA COUNTY, CAL.

BY MRS. F. E. B.

Since my last letter, the season has advanced very much. At the present writing, May 7th, the Honey Locusts are shedding their fragrant snow, and the figs are swelling on the trees under my window. Where there is irrigation, everything is very promising, but the rains were so scanty that the hills are already becoming brown and parched. Haying and harvesting are already in progress, but the crop is short. People are predicting an unusually hot Summer on account of the early ceasing of the rains, and the small snow-fall in the mountains. I took a little ride in the hills last week. The scenery, after crossing the little plain, was wild and grand, the way rough and steep. Flowers, many of them new, all the way. Those pretty little yellow tulips were as plenty as dandelions in the Eastern States, and I discovered, high up among the hills, the beautiful white tulip. There are innumerable small delicate flowers, in patches by the way, as well as some showy species. We came on a little brown house high among the hills. Beautiful roses and passion-flowers were bloom-

ing all over it, and its little flower-garden was arranged to be easily watered. Geraniums and roses bloomed in profusion on the wide cool porch. Afterwards we climbed the little ridge that shielded the house on the north-east, and saw the long range of the Nevadas—"whiter than snow." I saw that day Vick's "Climbing Hyacinth," and two small species, blue and white; his "Ithuriel's Spear," in the shades of blue he describes, and also white and straw color. Lilies in abundance, not yet in bloom; the white and yellow tulips; Crassulas, with orange and scarlet flowers, and some beautiful blue and purple of the Labiatæ and Boraginaceæ.

EDITORIAL NOTES.

MAGNIFICENT COLLECTION OF FUNGI AND THE LOWER CRYPTOGAMS.—Mr. H. W. Ravenel, of Aiken, South Carolina, who ranks among the first cryptogamic botanists of the world, is naturally anxious that the labors of a long life should be placed where they will do good long after he passes away. The collection could not be made for some thousands of dollars, but we learn that if they could be purchased and placed in some public institution, where the world may get the worth of them, Mr. R. would let them go on very liberal terms. It is because of this public spirited offer that we refer to the matter here. The following abstract shows how rich the collection is:—

Fungi.—In Herbarium proper, about 3,000 species. Of these, upwards of 700 new American species of Berkley and Curtis, and Berkley and Ravenel. The balance made up of American species, collected by myself and furnished by correspondents, and of European species sent by Berkley, Broome, Desmaziers and others. All in 43 vols., 6x9 inches; also in separate volumes: "Fendler's Venezuelan Fungi," 2 vols., 120 species; "Frogg's Swiss Fungi," 2 vols., 137 species. In addition to above, a large box, 9 duplicates, useful for exchanges.

Hepaticæ.—One vol., 12x9, containing 80 species, consisting of American and European species.

Musci.—Three vols., 12x9; containing, of American and European, about 500 species; California Mosses, 64 species; Hampe's Grenada Mosses, 78 species. Among these are many new American species of Sullivant, Lesquereaux, Austin, &c.

Lichens.—Seven vols., 12x9; containing, of American and European species, about 600. All the new Southern species of Tachenen are here represented.

Algæ.—Two vols., 12x9; containing, of American and foreign, about 300 species. The new Southern species of Wood and of Wolle are here represented.

BLUE GLASS.—A wealthy gentlemen, Mr. Spence, of Dundee, was a "disbeliever in blue glass," but noticing that it seemed to have the sanction of Mr. Buist, of Philadelphia, he decided to try it. He happened to have two houses just alike in every respect, and in one he took out the alternate strips, putting blue glass in the place. His gardener, Mr. Lawrie, thus writes about the results, on application of the Editor of the *Garden*:—"It is as yet premature to speak definitely as to the results likely to be arrived at as regards this experiment, for these reasons: first, because the Vines were only struck from eyes about a year ago; and secondly, out of the eight weeks since I commenced to force, we have only had a fortnight of sunshine, and from observations made, it is evident that the whole of the success lies in having an abundant supply of the blue sunray. In the first place, I shall say a word or two about the Vines. We took two Vineries of equal size in every respect, filled them with the proper soil for vine-growing, got good, healthy plants from Mr. Thomson, of Clovenfords, planted both houses the same day (January 13), pruned them and allowed them to settle in the soil till February 8, on which date they were watered and a gentle heat of 45° applied. As I have just stated, the two houses are of equal size, and both have the same advantage as regards sunlight, and the temperature of both strictly the same, the only difference between the two being that the one is furnished with strips of blue glass and the other is glazed with ordinary white glass, only. Now for the results, so far as the experiment has gone. At the end of the first four weeks, that is on March 8, the Vines had made 16 in. of growth under the blue, and only 4 in. under the white glass. On

the 9th of April, the Vines under the blue glass measured 3 ft. 4 in., and under the white 2 ft. 4 in., the two being equal in strength, but showing that the absence of the sun had retarded the progress of those under the blue glass to a greater extent than it had done those under the white glass. All the plants, such as Camellias and Fuchsias, are vigorous and healthy, although some of them were rather sickly when the experiment was commenced. Wishing also to test the effect of blue light upon vegetables, we planted a few early Potatoes in each house. They were planted on the same date as the Vines, and without any other heat than the atmospheric heat of the houses, the result to-day (April 10) is six of the Potatoes from under the blue glass weighed 11 oz., and six from under the white weighed only 5 oz."

This somewhat accords with the experience with Mustard, of thirty years ago, which we recently referred to in our pages—the early growth was accelerated by blue glass. Ultimately, however, the white glass beat. So far as Mr. Spence's experiment has gone, we see the same result. Though there was a gain of three-fourths at the first measurement, it was reduced to less than one-half in time.

We are glad to see practical gardeners taking in hand to try this matter in this way. There is a great deal of "science" brought to bear against General Pleasanton, which is all very well from the scientific stand-point. The ridicule and pleasantry, of course, General Pleasanton can stand. On the other hand, *many* of the good things claimed for the blue glass, it is more than likely, are to be referred to other influences than the mere blue glass, but, if under any circumstances, blue glass will favor the growth of any particular part, even though it be at the expense of some other part, it is to the advantage of gardening that we know it. The gourmand, who feasts on *pate de foie gras* is quite satisfied to get that *glout morceau*, without caring much for the health of goose that produced it. It is thus in many of our gardening operations.

The Sleep of Plants.—Referring to the peculiar times of opening and closing of various flowers, a writer, quoting from the *Proceedings of the Philadelphia Academy of Natural Sciences*, says:—"Mr. Meehan says the popular impression of light and moisture as agents in their behavior, had seemed to receive a tacit scientific assent. It was clear, he thought, there was a more powerful agency underlying them, and it was perhaps a gain to science to be able to see this, though in so dim a light."

In regard to this, a valued correspondent writes to us:—"Who are the scientific men deserving of the name, who hold any such belief?" Recently the *Scientific Farmer* has had an interesting chapter on "Light and Vegetation," in which occurs the following, from which it would appear that Mr. Meehan is not alone in supposing that the presence or absence of light was closely connected by intelligent persons with these diurnal openings:—"The so-called 'Sleep of Plants,' *i. e.*, the change in position which plants make from day to night is due to the presence and absence of light. The questions which naturally arise concerning the time of day or night, when certain species of plants open their flowers, giving rise to what are styled floral clocks, are interesting, but at the same time difficult to explain. That the modest Night-blooming Cereus prefers the night to the day for the unfolding of its large and showy flowers is curious. Why should the Mirabilis consider that time in the afternoon, from which it gets its name of 'Four o'clock' as the best hour to bloom? But we must not ask hard questions. Doubtlesst, he sunlight plays an important part in all these individual peculiarities.

"The sensitive plant is fast gaining the reputation of being an organization endowed with sensation and voluntary motion. If an active plant of this nature be placed in darkness for a length of time it loses this sensibility, or at least its susceptibility to shocks, and remains rigid until it has been again exposed for a considerable time to the action of the sunlight."

Northern Limits of Animal and Vegetable Life.—The memoirs of the Nare's Arctic Expedition are full of interest to the lovers of nature. "As they made their way further north than any of their predecessors, so they experienced intenser cold and more protracted darkness. The lowest temperature registered was 104° below freezing point, Fahrenheit; the mean temperature of 13 consecutive days was 59° below zero, and the mercury was frozen 47 days during the Winter. Although we hear much of snow-storms and fogs in those remote regions, it is recorded that a chronometer found in one of the Cairns that remain as records of the Expedition of the *Polaris* proved to be in perfect working order after an exposure of four Winters. A

quantity of wheat similarly exposed for the same length of time was found to be still unimpaired as regards its vitality, and readily germinated when placed under favorable conditions. At the latitude where the *Discovery* wintered, 81° 44' N., animal life was comparatively plentiful; but this may be reckoned as nearly marking its extreme limit, for the sledging parties found no game and were prostrated by scurvy through the want of fresh meat. The musk ox was the mainstay of the crews as regards fresh meat, but hares and many kinds of birds were obtained, a bear was seen, and in Lieutenant Parr's desperate adventure—walking alone over thirty-five miles of soft snow to obtain help from the *Alert*—he was guided by the fresh track of a roaming wolf. One of the prevailing birds is the Knot, Tringa canutus, a near relation of our sandpipers and plovers; a shore haunting bird, the nest of which is rarely seen in this country, even in districts where the birds abound, and of which it is reported that in the far north neither nests nor eggs were found, although the young in all stages of growth were plentiful.

"It may be assumed that latitude 83 N. is about the limit of life of all kinds—animal and vegetable—at all events, in the regions reached by way of the west coast of Greenland. Remains of Eskimo were found on the west side of Smith Sound in latitude 81° 52', which we may regard as the highest point reached by these strange wanderers, who, being largely dependent on the chase for subsistence, cannot proceed far beyond the limits of game, even had they such motives of curiosity as impel Arctic explorers. In due time we shall hear something of the vegetation of these regions, but it is not likely that there is much to be said on that subject; first, because there is not much vegetation, and secondly, because there were not many opportunities for botanical explorations; larger work consuming the time and strength of even the most leisurely of the party.

"Nevertheless, about fifty species of plants were discovered on the hills, prominent among them being the Arctic willows and saxifrages; and the lakes were found to be in many instances well stocked with salmon and trout, and their recesses were tenanted by vast flocks of brent geese."

The Shape of the Earth.—A Kansas correspondent of the *Scientific American* thinks it no proof that the earth was once an impalpable mass, that it is round now. He says:—"I hold that its shape proves nothing as to its origin, or the present condition of its interior. I think the earth could not retain any shape very different from the present one, even if it were composed of solid iron. It is known by all architects and engineers that there is a limit to the size of arches, depending on the strength of the material used. An arch spanning several inches can be made of soft putty. Many feet can be spanned by an arch of brick, and hundreds of feet are spanned by steel in bridges. But no one believes that an arch over Lake Erie, or over the Straits of Dover, would sustain itself, no matter what material was used. So that there is a limit to the size of any large body, beyond which gravitation exceeds cohesion. The most minute particle of water assumes a globular form when not in contact with other matter. Putty or jelly would act like water, but would require a larger quantity to overcome the cohesion of the particles. A body the size of the earth, if not revolving on its axis, would be spherical, or very nearly so, even if composed of steel. But let it revolve on its axis, and it will be an oblate spheroid. A very small planet, like some of the smaller asteroids, or a meteoric rock, might retain permanently any given shape."

Herbarium Specimens.—Mr. A. H. Curtiss, of Jacksonville, Fla., (formerly of Virginia,) has for many years made a specialty of preparing herbaria of United States plants; and will at any time supply sets, accurately labeled and systematized, at the rate of $8 per 100 species, or in exchange for desirable additions to his museum, library or garden. Packages sent pre-paid by mail, or by express, as far as New York.

Origin of the Phylloxera. — The *London Journal of Horticulture* says:—"The President of the Vine-growing Society of the Pyrenees Orientales has, says *Nature*, sent a document to Paris Academy of Sciences, affirming that 'it is the American plants which have brought the Phylloxera into France, and that each plantation of them is the signal for a fresh invasion.' This statement directly controverts the theory which has been more than once propounded, that American Vines are phylloxera-proof. Perhaps our American friends will embrace the opportunity of 'commenting on' the bold assertion of the Frenchman."

Well, we say that no one has denied it. There is little doubt, but the Phylloxera first appeared in the vicinity of Bordeaux, and was introduced by American Vines. We do not know who made the statement that American Vines are "Phylloxera-proof," but suppose the idea originated with a class of writers who imagined that *because* American Vines were recommended for stocks, *therefore*, they were Phylloxera-proof. No American grape is free from the attack of Phylloxera—they abound in any kind when they can get the chance. The writer of this assisted Prof. Planchon in digging up Clinton Vines which were covered with the insect, and the fact is duly recorded in Prof. Planchon's Report to the French Government; but Prof. P. discovered that some American grapes had a sort of contempt for the Phylloxera. While some—and all European grapes—had their fibres injured by the insect, they gave up at once, as if asking, what's the use of resistance? But the Concord, Clinton, Norton's Virginia, and one or two others, set to work and made more young roots at once, beating the Phylloxera by sheer perseverance, and not by any immunity from attack. We have stated this before in the *Gardener's Monthly*, but it will do no harm to repeat it again.

Paraffin Oil.—*Les Mondes* informs us that M. Jordery renders paraffin oil as thick as honey, by means of a vegetable powder (Saponaria), and thus prevents the liability of its causing fire, without, in any way, interfering with its properties, as it can be rendered fluid by the addition of a few drops of strong acetic acid. This is good news for people who employ it *inter alia*, for keeping frost out of small greenhouses.

Exposure of Seeds to Cold.—At a recent meeting of the Linnæan Society, a memento of the Polaris Expedition was exhibited by Mr. R. I. Lynch. This consisted of a pot of growing wheat, which had been sown and raised from the grain left in Polaris Bay, 81° 38' N., by the American Expedition. Capt. (Sir G.) Nares, in a letter to Dr. Hooker, states that the grain had been exposed to the Winter's frost, 1872-6; but, notwithstanding the intense cold it had been subjected to, the above sample, grown at Kew, gave sixty-four per cent. as capable of germination. A grain of maize among the wheat, which also sprouted, possessed even greater interest, being a truly tropical plant.

SCRAPS AND QUERIES.

Freezing of the Sap in Plants.—W. C. says:—"I send you enclosed an extract from one of our papers, and should be glad if you can tell us in the *Gardener's Monthly* how this can be. How can sap come up to the leaves when the sap in the roots and in the stems is frozen solid? It seems so impossible that only for the names and circumstances in the extract being given, I should have thought it a waste of time to trouble you:"—"At a recent meeting of the Elmira Farmer's Club, at the close of the discussion, Mr. Compton exhibited a pear twig with luxuriantly developed leaves, produced by a singular process. Early last February a letter from I. P. Schenck, of Ohio, was read to the Club narrating an experiment made by one of his neighbors, who introduced a branch of climbing rose into his conservatory, while the root, upon which it depended for support, was frozen up in the ground without. Under the genial influence of the heated air within, the branch put forth blossoms in mid-winter. Acting upon this hint, Mr. Compton, last February, brought the limb of an adjacent pear tree through a convenient aperture into his conservatory—hence the fully developed foliage. It would seem from his success, and that reported by Mr. Schenck, that abundant bloom may be had in the dark days of Winter without the trouble of nursing plants in pots, for in the case of roses, at least, it would be necessary only to pass the vine into the living room of an ordinary dwelling kept at a temperature always above freezing."

[Our correspondent can scarcely be a close reader of our magazine, or he would know by this time that the sap does not *freeze* in plants in the Winter time. The absurdity is rather in supposing that it can and does freeze, and yet the structure retain life. As for the fact that leaves, flowers and fruit can come from plants when the roots and stems are constantly subjected to frost and a very low temperature, it is well-known to every practical gardener who has had a wide range of experience. The writer of this referred to it, and explained it many years ago at the annual meeting of the Illinois Horticultural Society at Ottawa, Ill., as Mr. P. Barry will remember, as he took part in the discussion on the same subject.—Ed. G. M.]

LITERATURE, TRAVELS & PERSONAL NOTES.

COMMUNICATIONS.

LETTER FROM CALIFORNIA.

BY G.

SAN FRANCISCO, May 13th, 1877.

I know you will be interested to hear that Mr. —— called upon me at the hotel; invited me to breakfast; that I went and had a most courteous reception, and a charming time. The boat was crowded going over to Oakland; as San Francisco is such a cosmopolitan city the the people turn out strong to excursions. Besides regular passengers, 9000 excursion tickets were sold up to two o'clock. A short horse-car trip brought me to a fine laying piece of ground on the route—the long avenue bordered with Acacia trees in full bloom. The house, like all in California, is built of red-wood, but in elegant style. I was ushered into the library where Mr. and Mrs. ———, Mrs. ——— and Mrs. ———, his nieces, of Philadelphia, awaited me.

After a cheerful half hour of talk we went to breakfast. A course of omelette was succeeded by beefsteak; that by birds, and that again by tomatoes and artichokes; then hot cakes and some genuine molasses, which he had secured in Honolulu.

Mr. and Mrs. ——— then took me round "her" splendidly planted grounds. There was a Deodar Cedar 20 feet high; Norfolk Island Pine; Cedar of Lebanon; Pinus Pinea, a Portugese tree 25 feet high; Eucalyptus, 2½ feet diameter; grass lawns of great extent; shrubs and plants in the greatest profusion, luxuriance, bewildering novelty and variety. All this had grown up within twelve years, and been created on a spot as untamed, when they came in possession, as any in the world. As there was no railroad then and but few florists, each tree has a personal history which added to its interest: this one having been brought by such a friend "by hand all the way." Of course in the piece-meal creation of such a place many must have been sacrificed, and yet it is a superb collection for any place, and is the largest in variety and extent of any on the coast. At great expense a rockery was hauled by ox teams to the grounds after being selected by Mrs. ———, in the mountains, and arranged under her supervision. An artificial stream plays over the rocks and a pond for gold fish of some extent, receives the water. There were glades and clumps of wild shrubbery, rural walks and rustic bridges and seats and arbors; fuschias climbing (or trained) up to the second-story; flower-beds in mathematical shapes, and roses by the thousands. Box trees, hollies, cork trees, and an infinite variety of familiar and unfamiliar plants that would fill a gardener's catalogue to enumerate. We then went to the Fernery; and here in a damp atmosphere and under shaded light, with water trickling down a rockery overgrown with ferns, were big ferns and little ferns —maiden hair and club ferns—green, particolored, delicate and grass. The Elk-horn fern was hanging up over the entrance, a bunch about as big as a large hornet's nest, with leaves just in shape like an elk horn stretching out. Then we went in the parlor, and met the young ladies who with their children are occupying a cottage in the grounds.

Then Mr. ——— and I got into the buggy which had been waiting for us, and behind a $3,000 pair of magnificent black horses we trotted around the vicinity and through Oakland. The drive was *perfectly* charming. From near Mr. ———'s, we look right out over San Francisco Bay through the Golden Gate, with numerous islands and San Rafael and San Quentin in view. The Coast Range are but a short distance away and add a charm to the scenery. Oakland is a large city of elegant residences and more modest country homes.

[For the above interesting sketch of California home life, we are indebted to a Philadelphia friend to whom the letter was addressed.—Ed. G. M.]

ENCOURAGEMENT TO THE PRODUCTION OF NOVELTIES.

BY EUGENE GLEN, ROCHESTER, N. Y.

I notice in your last issue, that although you speak in very complimentary terms of an essay favoring horticultural copyrights, read by me before the Western New York Horticultural Society, at its meeting held in Rochester, N. Y., last Winter, you state that the plan is open to some quite serious objections which I have omitted to notice. I am sorry that you do not particularize these objections. Believing that the subject is worthy of an intelligent discussion I hope you or your correspondents will not fail to give to the public through your columns, whatever of specific objection not founded in prejudice there may be to the positions assumed by me. No scheme which will not bear up under the freest adverse criticism, should find any encouragement in the legislation of the country.

The title of the essay as designated by me, was, "Encouragement to the introduction of new varieties in horticulture, and prevention of frauds in the dissemination of the same;" and I feel confident that that feature of the measure which is indicated by the last clause of this title, will prove not less important and desirable than the other.

It is, doubtless, true that any legislation upon this subject will be attended with some difficulties and annoyances, but with my present light I feel very confident that the good resulting from the adoption of the measure I have favored, would far outweigh the evil. Of course I may be mistaken in this conclusion, and having written the essay without any personal interest to subserve, if objections can be presented which cannot be fairly met, or overborne by prospective good, I will promptly join the opposition.

To facilitate discussion, favorable or unfavorable to the proposed measure, I will, so long as I have copies left, send a copy of the essay as published, to any gentleman interested in the subject who may write me for it.

[We have no disposition to take this matter out of the hands of our correspondents. Our position is, that the raisers or introducers of new and valuable things should make much more than they generally do. Any plan that would do this, and not bring with it greater evils than those it attempts to cure, will have our approval. We have no room for very long essays, and have in the past had to decline diffusive papers on the subject,—but concise, well reasoned articles, such as Mr. Glen could write, would surely find place. —Ed. G. M.]

RHYMES, AND RECOLLECTIONS OF A CACTUS MAN.

BY WM. T. HARDING, SUPT. OAK HILL CEMETERY, UPPER SANDUSKY, OHIO.

Ye, who in gardens doth take delight,
Read, and observe these rhymes aright;
There's divers things in Dame Nature's range,
Of wondrous growth, surpassing strange.

Good garden folk, right well I ween,
Cactuses, doth most curious seem;
Some goodly grow, bedeck'd with posies,
Whilst some more sweet doth smell than roses.

Some there be of most uncomely mein,
Arm'd cap a-pe, with drawn weapons keen;
Yet some I trow, are wondrous fair,
With a winsome look, right pleasant are.

When sights like these arrests men's eyes,
They marvel sore, and with much surprise,
Exclaimeth thus, in language loude,
Forsooth! ye are a motley crowde!

Indeed they are, good reader, and more especially so, when associated with their alliances, are "Of wondrous growth, surpassing strange." And yet, notwithstanding their multiform and often grotesque features, they stand unsurpassed in the front line of loveliness, and floral beauty. Nature, has to a large extent, made ample amends for their curious and bizarre appearance, and richly compensated them for any lack of vegetal graces, with which other plants may be clothed.

Of cacti, some are known as *hedge-hog* kinds, while the term *porcupine*, would be equally expressive of others. The remainder, might very properly be designated *urbanes*, and *superbs*. Euphorbias, so variformed, would come under such appellations as *pachyderms*, *chevaux-de-frise*, *blands* and *brilliants*.

The writer's desire, is to create an interest in their behalf, which undoubtedly, they so well deserve. To see them in the front again, would not only be a satisfaction to him, but would prove a source of wonder, and agreeable surprise, to the intelligent plant-loving people. They would, he feels assured, appreciate them.

In Europe, they are popular favorites, and will he trusts, become so in this country ere long; and receive the proper recognition and admiration so justly their due.

The celebrated Kew Gardens of London, possess in all probability the best, and most extensive collection of any public or private place in the world. While Mr. Peacock, an enthusiastic cultivator in the suburbs, rejoices in having the most complete private collection, under the charge of the clever Mr. Croucher.

A well filled Succulent-house, would not be costly to keep, or care for. Neither would such an astounding plant *melange*, have any resemblance to an "old curiosity shop"; crammed with inert trash, and musty rubbish. Where there is life, there are hopes of happiness, present and to come. Although they are the oddest of all odd things, and the most "wonderful wonders" in the vegetable kingdom, they are as *intensely* interesting, as *extremely* curious. To us, it really seems as if The Author of all good, had some strange device in view, when fashioning their fantastic forms, many of which are *ultra-grotesque*, while others, are unrivalled in beauty. I have often noticed, both with amateurs and professionals, a strong desire to linger around them, longer than with many other things, more gaudy and gay, bloomed they never so grandly.

The miscellaneous subjects under notice, chiefly belong to eight remarkable Families—or Natural Orders; to wit:—Cactaceæ, Ficoideæ, Crassulaceæ, Hemerocallideæ, Portulacaceæ, Euphorbiaceæ, Bromeliaceæ, and Liliaceæ. Queer things with queer names; as in the natural fitness of things, they should be. As the writer has hitherto said but little about Succulents, he now courteously bows to all "good garden folk," and while describing them, will "a tale unfold," which, is no fiction.

He almost fancies there is still the fragrance of a night blooming cereus, or Cereus grandiflorus; pervading the room in which this is penned. The flower is visible in the mind's eye now, the first one he saw in bloom. Although its grandeur was so evanescent then, it has, like an everlasting, retained all its pristine beauty, and in recollection, is still freshly blooming. Well do I remember the time and place, when, and where it occurred; of which, more anon. I was then, I trust, a diligent pupil of a good man, and an excellent Gardener, whom I shall call Mr. Potmarjoram; simply, because that was not his name. The estate, on which he lived, was old, extensive and entailed. The orchards, kitchen gardens, and forcing houses, were noted for the abundance of good things they produced; while the park, and pleasure grounds, were as picturesque, and gardenesque, as Nature and art combined, could make them. Taking it altogether, it was as great and grand a place, as could well be found in the United Kingdom. A specialty, of this famous place, was Succulents, or dry stove plants, as they were then generally called.

Mesembryanthemums, at that time, were much admired; and let me add — they are equally admirable now. They are as well known for their beautiful flowers, many of which are conspicuously high colored, as for their very curious habit. The genus, to which they belong, is one of the most numerous known. For *peculiar effect*, they are indispensable, either in pots or beds. They are excellent plants to put out on warm sunny borders, during the Summer months. They delight to bask on a hot, dry bank, and in such a situation, will flourish and flower, where many other things would fail. They are also useful as vase, or rustic basket plants, the sides of which they drape charmingly. There is a variegated kind, doing good service, in that way. M. edule, is the Hottentot fig, and is edible, as its name indicates. The sable epicures of South Africa, seem to prize it highly. Probably, the most generally known kind, is the popular annual, M. crystallinum, or ice plant, a native of Greece. M. calamiforme, and multiforme, are remarkable kinds.

Little did the writer then dream that he would afterwards see them in myriad masses, creeping up the side of Table Mountain, or spreading wildly over the sandy plains, at the Cape of Good Hope; with other plants he has yet to mention.

Well, let the supposition with the reader be, that at a certain time, and place, before alluded to, the writer is *pottering* among them and their curious congeners, where they most do congregate. As he saw them at that time, in the Succulent-house, so will he speak of them now.

There stood the big American Aloes, Agave Americana, or Century plants, so-called. They were quietly biding their time, as ancient aloes do. The stolid, sturdy centenarians, were probably the two oldest inhabitants of the antiquated community, of which they had long been honored members. While slowly accumulating years, they had gathered strength and stability. And what a glorious end awaited them. To raise a lofty floriferous monument before passfng away, and then to repose calmly beneath,

wrapped in a shroud of their own flowers. Thus, terminates such agave existence; in fructification and death. A. vivipara, A. lurida, A. yuceæfolia, and A. flaccida, were the magnates, grandees, and distinguished plant nobles, which composed the Agave assembly. Fourcroya gigantea, was a real Goliath in stature, with F. rigida, as armor-bearer, in front. They each had a stern, time-defying look, as if good for a thousand years. Adjacent, like its illustrious namesake, Buonaparte, stood Buonapartea juncea; as firm and inflexible, as becomes one with such a name.

(To be continued.)

EDITORIAL NOTES.

Grape Culture in England.—England was at one time famous for its vineyards and its wines. The great battle of Hastings, which determined the conquest by the Normans, was fought in a vineyard. When France was invaded by England, the superior article of Continental Europe, put down English made wine, and not any peculiar change of climate. The Marquis of Bute, in Glamorganshire, is now growing grapes as formerly.

A poet, in the days of Elizabeth, tells us—

> Every man eat in safety,
> Under his own Vine, what he planted;
> And sang the merry songs of peace
> To all his neighbours.

Royal Patronage of Horticulture.—Alluding to the fact that for the first time in many years the exhibition of the Royal Horticultural Society was a great success, an English cotemporary, (name lost,) says:—"The Scientific Committee was specially honored—its President, Dr. Hooker, who is also the President of the Royal Society, accompanying the Royal party and explaining the more noteworthy objects exhibited. The Queen on leaving, expressed her pleasure at her visit, and we do not think these were mere words of courtesy, for Her Majesty looked pleased; and undoubtedly the horticulturists, who yield to no class of Her Majesty's subjects in their loyalty, were delighted to see among them once more their Queen, and to feel that their efforts to diffuse a knowledge of the glories and wonders of creation, and to contribute to the material and mental welfare of mankind, are still sanctioned and appreciated as they were in the days when the broad-minded Prince Consort had the sagacity to include Horticulture among those arts and sciences which, in the interests of the nation at large, he did so much to promote."

We copy this for the sentiments it expresses in regard to social leadership in good enterprises. We are apt to laugh at the idea that the smile or the frown of any one human being should make all the difference between success or failure in a horticultural or any other exposition; but we must not forget that there is something in the average human mind that longs for a leader. So long as it is satisfied that the leader ought or deserves to be in power, it loves to follow. The average of human beings are really too languid to think deeply for themselves about everyday affairs, and though they read regularly the news, turn with relief to the "editorial," for the comments on which they ought to be able to have as good ideas for themselves.

So, in all these good works some one must lead, and it will be to the everlasting honor of Prince Albert that he set this good example. We have no social aristocratic classes here, but everybody acknowledges and worships the aristocracy of intelligence, and it does not take long for this to be acknowledged, and for the possessor to be in some sort made to know that he fills this elevated seat in public estimation. When to this is added material power, no false delicacy should prevent its possessor from "leading off."

Horticulture in America is just now, especially, suffering from the want of leaders among those who worthily possess influence, if they would only use it.

Letter from Mr. Jacob Moore.—

"Wichita, Kansas. May 11, 1877.

"Mr. Editor:—So you don't like the tone of my last communication, on the subject of patenting new plants. You must remember that there are occasions when it is right and proper to give vent to a righteous indignation, and when it is wrong to gloss over evil-doing with euphemistic phrases. Such an occasion is presented by the position taken by the editors of many of the principal horticultural and agricultural papers on this subject. Pretending to desire advancement in horticulture, they oppose the very means of making such advancement—by denying the plant originator the right to the legal protection necessary to enable him to secure compensation. Therefore, I have written you and other editors, and I hope not in vain.

"With regard to the practicability of the protective measures proposed, you will remember

that I once sent you a paper showing plainly their practicability, and you refused to publish it. Also, you refused to publish my reply to Jacob Stauffer, the solicitor of patents, who opposed the proposed protection in the *Monthly*. Therefore, I am led to doubt that you desire to show fair play to both parties. If, by the word practicability, you mean the framing of a law which no one can break, of course the case is granted, as there never was a law made yet, which was not transgressed by some one. But the majority of people abide by the laws, and there is just as much reason to suppose that the majority of people would regard the proposed enactment as any other protection.

"JACOB MOORE."

[Mr. Jacob Moore writes occasionally as if we had some special ill-will against him, but he is much mistaken. Some time since he wrote that he had "now done with us and our likes for ever," and we were therefore surprised at receiving this letter from him. As, however, it is a sign of returning good sense, and not very long, we let Mr. Moore be heard, merely taking out a paragraph referring to another magazine, with which we have nothing to do. In future, however, we shall prefer if Mr. Moore will choose other channels as vent holes for his righteous indignation. The *Gardener's Monthly* has no taste for that class of literature, "righteous" or otherwise.—Ed. G. M.]

ORIGIN OF THE NAME "WALNUT."—Walnut, a name that occurs with little variation in the German and Swedish dialects, is from the "Anglo-Saxon "wealh-knut"" the foreign nut; "wealh" was a term our rude forefathers applied to anything foreign, hence "wealh-men," (Welshmen) the Celtic race formerly inhabiting this country, but driven by them into the fastnesses of the Welsh mountains. The etymology of this word implies that the same people were acquainted with this fruit long before the tree was introduced. Like many other fruit-bearing trees, it is supposed to have been introduced by the Romans, but to have been lost through the neglect they received after the departure of these warlike people, and to have been re-introduced by the monks of the middle ages, who were great gardeners and cultivators.—*Gardener's Chronicle.*

THE AGE OF ORANGE TREES.—The Paris journals announce the death of a famous orange tree in its 455th year, known under the name of Grand Bourbon or Grand Connètable. In the year 1421 the Queen of Navarre gave her gardener the seed at Pampeluna. Thence sprang the plant, which was subsequently transported to Chantilly. In 1532, however, the Constable of Bourbon (Lord of Chantilly) having sided with Charles V. against Francis I., his goods were confiscated, and along with them the orange tree, which was duly sent to Fontainebleau, whence, in 1684, Louis XIV. transferred it to Versailles, where it remained the largest, finest, and most fertile member of the orangery, its head being fifteen metres round, and the trunk seven metres high.—*Journal of Horticulture.*

REPTON'S TOMB.— Humphrey Repton, the writer on landscape gardening, was buried at Aylsham, in Norfolk, and the following is his epitaph, inserted in the wall of the church close to the chancel door:—

> "Not, like Egyptian tyrants, consecrate,
> Unmixed with others, shall my dust remain;
> But blending, mould'ring, sinking into earth,
> Mine shall give form and colour to the Rose;
> And while its vivid blossoms cheer mankind,
> Its fragrant odurs shall ascend to heaven!"

A small railed-in garden is in front of the tablet, and this garden is always kept bright and orderly by cousins of Mr. Repton, who live in Aylsham.—*Journal of Horticulture.*

ENGLISH NATIONAL EMBLEMATIC PLANTS.—Some notes on these were in this Journal a few weeks since, and I hoped to see others, but as they have not appeared, I copy the following from a MS. volume. Many centuries before the wars which

> "Sent between the red Rose and the white,
> A thousand souls to death and deadly night,"

the flower had been famous in our island, and its emblem was and is the *Rosa anglia alba*, the white English Rose. Some writers have thought that the name Albion was applied to our island on account of the white roses it produced.

The Thistle is the emblem plant of Scotland, and if the tradition was founded on fact it is the Stemless Thistle, *Cnicus acaulis.* According to that tradition the Norsemen would have surprised the Scotch clans in a night attack if one of their spies had not uttered a loud imprecation upon treading barefooted upon one of these Thistles. The clans dubbed the plant "The Scotch Thistle," and it was accepted as a representative plant, and the appropriate complimentary motto attached, *Nemo me impune lacesset*—No one injures me with impunity.

It is doubtful what plant was first adopted for

Ireland's national plant. Shamrock is a corruption of the Irish "Seamrog," which is applied to many plants, as the Wood Sorrel, Purple Clover, Speedwell and Pimpernel.

The Irish are said to have adopted the Shamrock as a badge when converted to Christianity in the year 433 by St. Patrick. They adopted it because he used the three-leafleted plant as an illustration of the Trinity.

St. Patrick probably held up Oxalis acetosella. Clover was not introduced into Ireland until centuries after him, and the plant he held up was eaten by the Irish, which points to the Oxalis.

Why or when the Welsh adopted the Leek as their national emblem is not known. None of their early bards mention it.

The Tudor colors were green and white, and these were well represented by the Welshmen of Henry VII.'s body guard wearing a Leek in their caps at the battle of Bosworth. There is in Wales a tradition that the Saxons attacked the Britons on St. David's-day and put Leeks in their caps as a distinguishing badge, but the Britons proving victorious transferred the Leeks into their own caps from the caps of those they had slain and taken prisoners. Among the Harleian MSS. is a poem referring to this event, and adding—

"Next to the lion and the unicorn
The Leek's the fairest emblem that is worn."

Some authorities state that the Leek has become the national plant of Wales because its farmers from time immemorial, when they aid each other in plowing, according to a custom termed *Cymbortha*, bring nothing but leeks for their sustenance, all other requirements being supplied by the farmer they are helping.—*G. in Journal of Horticulture.*

The Name "Elm."—*Elm*, from the Anglo-Saxon "elm" "ellm," or "ulme," and the Dutch "olm." This name occurs with slight variations in all the Celtic dialects. From the fact that the Elm rarely ripens its fruit in this country, coupled with the resemblance of its name to the classic *ulmus*, it is looked upon as a doubtful native. The term "Wych Elm" is supposed to refer to its ancient use for water-pipes, especially in connection with salt-springs, erroneously supposed to have been called "wyes" and "wics," as in Nantwich, &c. The writer is of opinion that the term "wych," also referable to the Hazel and the Mountain Ash, is merely a varied form of "withe"—a lithe or pliant rod or twig.—*Gardener's Chronicle.*

The Evergreen.—This is the title of a new horticultural magazine just started in Holland. We commend the example to those who may want to try their luck at new magazines in this country. It has been the practice in past times to take some popular English magazine and stick "American" on to the title. This at once stamped the experiment as lacking in originality, and predicted failure from the onset. We have never felt free to say this on the appearance of these ventures, as it might expose us to the charge of "malice aforethought." As there are now none in the field, we may rather claim generosity in offering this advice to the next comer.

State Entomologist of Missouri.—In 1868 this office was established, and Mr. C. V. Riley appointed as Professor. We see it stated that the Legislature has discontinued the office. It is strange that the Legislature did this thing. The labors of Prof. Riley have not only been of immense value to the agriculture of the State in itself, but they have tended to make the State better known than anything which could be done. Even as an advertisement it was one of the best investments the State ever made. There must be a great dearth of intelligent men in the Legislature of any influence, or some one of them would surely have been able to show this fact to the others. Let us hope that the next Legislature will see their error and retrieve the blunder they have no doubt unwittingly made.

Proceedings of the New Jersey State Hort. Society. From Mr. E. Williams Montclair, Sec'y.—This is the record of the second annual meeting, and shows prosperity. We have been anxious to know what has been the experience of people with whitewashed trees in relation to the fire blight in the pear, but no one has responded. In this volume we note that "Mr. Collins had blight on whitewashed trees two years in succession." It would be very interesting to have further particulars. We do not know that whitewash is any good in such cases; but if the disease comes from the spores of fungi, working from outwards, inwardly, whitewash *might* help in destroying these spores. Details of these observations would help to settle this point. What kind of "blight," had Mr. Collins, and how much of the tree was whitewashed? A full account of Mr. C.'s experience would be thankfully received by us.

The essays and discussion as reported took a wide range, and the subjects are, in fact, as well as name, truly horticultural. Prof. Thurber worthily fills the Presidential chair.

New Professors.—J. L. Budd has been selected as professor of horticulture in the place vacated by Prof. Macafee, in Iowa Agricultural College. Prof. J. T. Rothrock, well known as the botanist of the Wheeler expedition, has been selected for the chair of botany in the Pennsylvania University. Prof. Rothrock is doing his best to make botany popular among the masses of the people, by giving free lectures on botany in the Horticultural Hall, Fairmount Park, which are highly appreciated. Dr. J. Gibbons Hunt, eminent as a botanist, especially in connection with microscopic work, has been elected to the newly founded chair of histology and microscopic technology in the Philadelphia Academy of Natural Sciences. In the newly formed State Board of Agriculture for Pennsylvania, Mr. Thomas Meehan has been elected professor of botany, and Mr. Josiah Hoopes professor of Horticulture. Mr. Hoopes has been one of the most vigorous Presidents of the State Pomological Society, which practically takes under its protection all the more solid branches of Horticulture, and is well known in connection with valuable horticultural services, and we are pleased to record this tribute to his good work.

History of the United States. By Josiah W. Leeds. Philadelphia: J. B. Lippincott & Co. —Friend Leeds is well known to our readers, as a contributor to the pages of the magazine. Like Mr. Parkman and other of our friends to whom Horticulture is a pleasant pastime, he loves literary work; and is a close student in all intelligent pursuits.

In regard to histories, it makes little difference how impartial an author may be by nature, it is almost impossible for him to write except from a particular standpoint, and hence the truths of history can only be evolved when writers of different dispositions take to writing of the same thing. Almost all histories show the progress which nations make as the result of the wars they have gone through. Josiah Leeds, belonging to the Society of Friends, and a "man of peace," rather loves to show what has resulted from art and industry as applied to peaceful pursuits; and, perhaps, what has been retarded by war. This is not a line conscious, perhaps, to his own mind, but it is not difficult to trace through these pages the influence of the peace principle.

Well, Horticulture is especially a child of Peace, and we may welcome all that helps to develope and strengthen its relations; and we hope Friend Leeds' book will have a wide sale. We usually leave prices to the advertisers, but in view of our obligations to the author's excellent communications to our pages, may be pardoned for saying that this volume costs $1.75.

A Dahlia Catalogue.—Many of our florists devote themselves to specialties—here is a very full catalogue wholly devoted to Dahlias, from Samuel G. Stone, of Charlestown, Mass.

A Hardy, Herbaceous Catalogue.—Messrs. Woolson & Co. will devote themselves wholly to hardy, herbaceous plants. This catalogue is one of the few which is minute in its accuracy. Mr. G. C. Woolson was formerly associate editor of the *American Agriculturist*, and is a botanist of high character.

The London Garden.—It has been said in some quarters that gardening is not as flourishing in England as it was a quarter of a century ago, but by the magnificent success of the *London Garden*, now in its tenth year, there can be no falling off in the lovers of "the garden," whatever there may be of gardening. We have before us a bound volume from the publisher, for which we are indebted to Mr. W. Falconer, of the Cambridge Botanical Garden, to whom we have already been under obligations for some of the best contributions to our magazine.

Durand's Strawberry Culture.—Mr. Durand is one of the most successful of living strawberry cultivators, and in this little tract he gives the full details of his successful practice. The pamphlet has no price or place of publication attached to it, so we suppose it is intended for free distribution among Mr. Durand's customers.

SCRAPS AND QUERIES.

Tumble Weed.—Mr. Sereno Watson, the distinguished botanist of Clarence King's expedition, kindly furnishes the following note:—

"As to the 'tumble weed,' your correspondent, Mr. Wier, describes the habit of the thing very well; but it is the common Amarantus albus, L."

THE

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FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

It is no wonder the Pampas grass increases in popularity—there is scarcely anything more charming in an American garden than a rich stock of Pampas at this season. Then the flowers come in so well for parlor decoration in Winter. For this purpose they should be cut before they are quite mature, and rolled in paper till wanted. The Tritoma and the Gladiolus are the gems of the garden at this season. It is hard to tell what we should do without them—nothing but fall back on the leaf plants. But those who have been cultivating herbaceous plants will soon be about rewarded, for large numbers of Autumn blooming kinds are starting to flower now.

Towards the end of the month, and in September, evergreen hedges should receive their last pruning till the next Summer. Last Spring, and in the Summer when a strong growth required it, the hedge has been severely pruned towards the apex of the cone-like form in which it has been trained, and the base has been suffered to grow any way it pleases. Now that, in turn, has come under the shears so far as to get it into regular shape and form. It will not be forgotten that, to be very successful with evergreen hedges, they ought to have a growth at the base of at least four feet in diameter.

Transplanting evergreens in August and September, cannot well be done in any case where the trees have to be packed in boxes or bales to reach their destination; as the chances of drying up in such hot weather as we usually get in these months overbalances the advantages of the rapid push of new fibres by the trees at this season; but where the trees are at hand, and can be taken from one place at once and put into another, all in the same day, they do remarkably well; but very much of the success will depend on how the trees are dug and re-planted.

In digging up trees great improvements have been made over former years. The great anxiety to save a "ball of earth" has given way to great care to save all the roots. All the use there can be to a "ball of earth" is to keep the roots moist during removal; but in most cases—indeed in all except very small specimens—it is found in practice that the preservation of young roots in the ball, is at the expense of the numerous fine fibrous roots necessarily left outside. The digging-fork is now the chief tool used in digging up trees; and the distance from the trunk at which the digging up is commenced is much farther off. After a circle two feet deep is dug around a tree, a few thrusts of the digging-fork under the ball lifts the whole mass over, and the soil can then be entirely shaken away.

In re-planting, it is desirable to use soil for filling in that is nearly dry, and will crush to a fine powder; it will then fall in all around the root spaces, and the harder it is tramped or crushed in, the finer it will break and cover up the young rootlets. If the ground or weather be very dry, water may be poured in heavily, to assist in packing the soil well about the roots,

letting it soak away well before filling in the remaining soil—and putting in this soil very loosely, and without pressure, according to directions we have so often given in these pages.

COMMUNICATIONS.

THE AILANTHUS.

BY J. STAUFFER, LANCASTER, PA.

I always admire charity, long-suffering and kindness, even should I, like many others, sometimes come short in the observance. Gen. W. H. Noble, of Bridgeport, Conn., in the last (May) number of the *Gardener's Monthly*, on page 132, speaks a kind word for the abused Ailanthus. To this I do not object; but to answer a question regarding the two species of Ailanthus, about which he seems mystified, he says: "Johnson says there are two species, the glandulosa, the other variety is not named or described," adding, "And I think it must be in this country, and bear the character I am about to give." Which see. In *Johnson's Gardener's Dictionary* (London, 1870), I find this brief statement: "Ailanthus from *ailanto*, tree of heaven; referring to its lofty growth. Nat. Ord. *Xanthoxyls* (*Xanthoxylaceæ*) Linn. 23 *Polygamia*, 11 *Diœcia*. Deciduous trees, cuttings of the roots; sandy loam and peat. Ailanthus excélsa (lofty, 50, Green, E. Indies, 1800. Stove. Ailanthus glandulosa, (glandulous), 20. Green, China, 1751. Hardy." I copy the record as I find it, as the late edition is in few hands. I will add from other sources that in the A. excelsa, or E Indian, the leaves are abruptly pinnated, leaflets serrated; while in the glandulosa the leaves are pinnated, with an odd one terminal, leaflets toothed at base, teeth glandular. It should properly be called "Ailantus," derived from *Ailanto*, the name of one species in the Moloccas; hence it would seem writing it *Ailanthus* is not correct. The A. glandulosa is very common in Lancaster county, and looks like a *gigantic Stag's-horn Sumach*, its very long leaves, from one to two feet, unequally pinnated, and its terminating pedicel of numerous flowers, which exhale a disagreeable odor, are conspicuous. Dr. Darlington says of this Oriental stranger: "It is a real nuisance, and was appropriately named '*Cacodendron*' (evil or pernicious tree), by an eminent botanist," and he, Dr. D., condemns its odor and tendency to send out *suckers* broad-cast, and advises it to be cut down near dwellings. He admits its rapid growth and good quality in making of timber.

The tree grows fast in any soil, however poor, especially if it be calcareous. The wood is hard, heavy, glossy like satin, and susceptible of a very fine polish. It is said in "France it has produced both male and female flowers, and fruit twice in ten years." It strikes me that there is fruit as well as flowers with us, on matured trees every year. How is that?

I do not think we have the two species. The excelsa is too tender for our climate. There may be a variety of the glandulosa, but the mere change of color in the leaf hardly warrants such a supposition. The General will excuse me by quoting his concluding remark, as an apology for this article. He says: "At any rate, in Autumn they are very marked ornaments of the landscape, and tower into grand bouquets. Now, are these two varieties in this country, and is this one I admire, that other? Will the *Monthly*, or some one answer, and tell us its name?" As that *some one—one* who has given the subject of botany *some* attention—I have given the name and distinction of the two species. I take it for granted that the General cannot mistake a Staghorn Sumach for that other variety, the "*Rhus typhina*," L., the fine purple cluster of fruit on the fertile plant of which renders it quite ornamental. The tree attains 20 feet, and has 20 pairs of lance oblong leaflets two to four inches in length, common petiole one to two feet long, flowers yellowish green, in thyrsoid panicles. Perhaps a closer inspection will determine the matter, as there is a general resemblance to a casual observer.

RHODODENDRON CALIFORNICUM.

BY W. C. L. DREW, EL DORADO, CAL.

Among the many plants of California, there are none more deserving of cultivation than Rhododendron Californicum. It is a shrub, growing from three to eight feet high, according to situation; in general outline it resembles the well known Eastern Rhododendron, Catawbiense. The leaves are about, when full grown, five inches long, in shape broadly lanceolate, or oblong; in color they are a bright, shiny green. The flowers, like those of all Rhododendrons, are very handsome. They are borne in umbels.

The florets (or separate flowers), are about two inches in diameter. The flowers in shape are broadly campanulate, the lobes or divisions being undulate; in color they are of a rosy purple, to a clear, almost violet purple; they vary with age; the upper lobes are yellowish, or cream color, spotted within. The stamens are shorter than the corolla, the filament being incurved.

Rhododendron Californicum is only found in the northern part of the State. It has one near relation in California, R. Occidentale, which I shall describe at another time. How it will do in cultivation I cannot say, but will be a valuable acquisition, undoubtedly.

CERCIS JAPONICA.—JAPAN JUDAS TREE.

BY W. H. MOON, MORRISVILLE, BUCKS CO., PA.

The Japan Judas is one of the most beautiful and attractive of the early flowering shrubs, and deserves a much more general appreciation and use than it has received. It is a bush of slow growth, attaining a height of from eight to ten feet in as many years; very symmetrical and compact in habit, which makes it valuable as a decorative plant for small yards, and does lessen its value as an ornament for large lawns or parks. It differs greatly from the old and well known American Judas Tree, and is vastly superior to it in being dwarf and compact in habit of growth. The flowers are larger, more thickly set on the stem, and of a much brighter and prettier color. The foliage is larger, darker green, and much more abundant.

The flowers open about the first of the Fifth month, and are in perfection before the fifteenth. They are small, with stems so short as to be scarcely visible, and borne in clusters or knots all along the branches, looking as though they had burst forth from the hard, apparently lifeless wood. Every limb and twig on the whole plant, from the ground to the top of the tallest branches, is then clothed with a dense mass of bloom of the brightest shade of rosy pink, before the leaves appear. When planted amidst evergreens or early starting shrubbery to supply a green background, when in full bloom, it is certainly one of the most attractive and gorgeous sights to be found among blooming shrubs. The leaves which appear soon after the flowers are faded are particularly pretty, being nearly round in shape, four to six inches in diameter, thick and leathery, of a rich, dark green color, and produced in such abundance that the bush appears to be a solid mass of verdure, making it an especially attractive shrub during the Summer, when not in bloom.

It appears to be generally hardy in the latitude of Philadelphia, though the flower buds are occasionally injured by very severe Winters. To guard against this, a situation protected from cutting winds, and where water will not lie around the tree, is desirable.

It has been in this country at least twenty years, but the difficulty of propagating it is such that the market has never yet been supplied.

LAURUS SASSAFRAS.

BY PHILADELPHIA.

There was a request made in the *Monthly* a short time ago for information in regard to any fine specimens of trees. I recently met with a very large Laurus sassafras. It is growing on a farm rented by John Gaul, on Cox's Lane, near the Island Road, in the lower part of Philadelphia. The circumference of the trunk at three feet from the ground is over twelve feet. The tree itself is about fifty to sixty feet in height. The first branches are about twelve feet from the ground, and where they leave the trunk are curiously flattened, being about nine inches thick to two feet wide.

There are a great many fine old trees in that section of Philadelphia, and some day I may give you particulars of more of them.

NOTES ON RARE PLANTS OF SOUTHERN UTAH.

BY A. L. SILER, RANCH, UTAH.

You were pleased to publish some notes in the June number of last year on plants of Southern Utah, from my pen. I will try again.

Spiræa cæspitosa is a low growing shrub, found in the South-eastern part of Nevada on limestone rocks, in Southern Utah and Northern Arizona on sandstone, and about Mt. Nebo, in the northern part of Utah, on limestone ledges. It is perfectly hardy, evergreen, growing to the height of two inches, hugging the face of the rock. It throws up flower stems four to five inches high, with very small white flowers.

This shrub often covers seven feet square from a single root.

Chilianthus Californicus. — I found a single plant of this growing on a ledge of limestone in the Beaver Dam Mountains, S. E. Nevada, two years ago last month. It was then in full leaf In September following I found the same bush in flower, and sent you flowers off it. I have since found it growing amongst the rocks on the Saven river, about forty miles from its source. Its fine cut foliage and hardiness will make it a desirable shrub, if not already introduced. As it seeds abundantly, it will be easily disseminated. At the same time that I found the above shrub in flower, September, 1875, I found in a wash leading north from the Rio Virgin, *Chilopsis linearis* in full bloom, and they were truly very pretty. On the same day I found a Nail Keg Cactus, *Cereus Le Contei*, about two feet high and 16 inches in diameter, in full flower. These usually grow in sheltered situations, where the north wind does not strike them with its full force, and it is interesting to see a hundred or more of them ranged along in regular order just under a ledge where they can have the warm sun, as they face to the south. They are found all sizes, from the size of a tea cup to four feet high, and as large as a flour barrel. Owing to the spines retaining their pinkish red color, and being so firmly attached to the base, they make very pretty mantel ornaments. I know a lady who has two of them in use, and has had for over a year, and she tells me that when they begin to lose their color, she sprinkles them with water, and they are as fresh and brilliant as ever. Since I have wandered off from the shrubs to the Cactus (well, these are my delight), I will speak kindly of a few more of these sharp fellows. Cereus Engelmannii is almost hardy, grows to the height of 12 to 20 inches, often eight or ten leaves from root. Some have black, others cream colored spines, with scarlet flowers about three and a half inches in length. The petals are very pretty, looking like the feathers of a Yellow-hammer's tail. They have edible fruit, cool and refreshing, with a strawberry flavor.

Echinocactus Johnsonii is found only in the Beaver Dam Mountains, and south-west of them they grow on flat limestone rocks. Wherever a handful of dirt can lodge you find one of these. They grow to be six to eight inches high, with a diameter at the base of about half that; spines red or yellow. They are very ornamental. I have never found one of them in flower. It is only very recently that these have been sent out.

Opuntia rutila, with very long, hairy-like white spines, bearing a pinkish purple flower as large as a large rose. This is probably the only Opuntia of any value in this locality, and it is a beauty when in flower.

We have a Cactus that grows in masses of from three to five hundred, each leaf resembling the cone of a pine tree; hence it is called the Thousand flowering Cone Cactus. It is perfectly hardy, with dark, blood-red flowers, which are borne in great profusion. I have not been able to get it named yet.

SEDUM GLAUCUM.

BY F.

This is a beautiful little carpeting or rock garden plant, some two inches high, of very dense and rapid growth, and almost but not quite hardy. It may be wintered like Othonna, under stages or out-of-the-way places, away from frost. Every little bit grows, and as it withstands drouths unflinchingly, it is an oversight to omit a panel of this stone crop in the succulent beds that are now becoming so fashionable. As a carpet under isolated Agaves in little beds, it is very applicable, as it covers the ground quite neatly, and never deigns to raise its head intrusively amongst the massive leaves of its fleshy companion.

A COUPLE OF CALIFORNIA FRITILLARIAS OR RICE ROOTS.

BY H., SAN JUAN, CAL.

F. lanceolata is one of the stateliest of its class, and I think the most beautiful. Though found frequently on dry hill-tops, it luxuriates in warm slopes of rich, well-drained soil. There seems to be two varieties as to ground color; one a yellow, the other a purple, with a plum-like bloom. In other respects they are similar, having the orthodox, dice-box shaped flower, from one to one and a half inches deep, and one and a half to two inches in width. The mottling is various, in some appearing perfectly checkered, and the edges of the leaves of the perianth are crimped and scalloped. The flower stem rises frequently to the height of three and a half feet, and bears one or more whorls of brightly shining, lanceo-

late leaflets, with similar leaflets scattered up the stem till they run into flower bracts, from each of which hangs a blossom. I have counted nineteen blossoms on a single stem, and one remarkable group I found, consisted of more than 100 plants, waving and glittering in the sunlight most beautifully.

The plant of F. parviflora is similar to F. lanceolata, but not so tall, and prefers moist, shady hill-sides; its flowers are saucer shaped, or rather wheel shaped, sometimes one and a half inches in diameter. The stalks seldom bear more than ten flowers. The bulbs of each are of a waxy-white appearance, of conical shape, with a flange-like base, and bear on their sides numerous bulblets from the size of a grain of rice to a pea. Those of F. lanceolata frequently are angled and compressed curiously by the coarse gravel found where they grow. The bulbs are sometimes two inches in diameter, though oftener one.

THE VIBURNUM PLICATUM.

BY GEN. W. H. NOBLE.

I see that nurserymen say this plant (the new Snowball), is very difficult to propagate. I have not found it so. I raised three fine plants from one small layer. But I think it was a two year old shoot which I laid down, and my impression is that no shoots came up till the second year. I think if two year old shoots are laid down, or if any shoot remains layered two years, well formed roots will result. A nurseryman here tells me he has had like experience.

EDITORIAL NOTES.

The Honey Locust in Canada.—This is said by the Toronto *Globe* to be rather too tender in their severe Winters to make a good hedge plant in Canada.

Abies Engelmannii.—The English papers continue to discuss the differences between Abies Engelmannii and Abies Menziesii. Some say that "because it pushes out earlier than Abies Menziesii, A. Engelmanii is unfitted anywhere for the north of Europe." We know of a specimen which is undoubtedly A. Engelmannii, because it was taken from an altitude of some two miles up the mountain, where A. Menziesii does not grow, and which we examined in company with Dr. Parry himself recently, and which we are satisfied is hardy enough for any part of Europe.

The Daffodil.—The old folks around Philadelphia call this "butter and eggs," chiefly in connection with the double kinds. There is, after all, very little beauty in a double daffodil. In some flowers the florists have added beauty by "doubling" them up. But the single daffodil is much handsomer than its progeny.

A Large Collection of Gladiolus.—We have a beautiful colored plate of Gladiolus from Messrs. Vilmorin, of Paris. This firm exhibited twelve hundred spikes, ten of a kind, at one of the London shows last year.

Double Blossom Peaches.—We saw a group this Spring formed of four ornamental peaches, and nothing could be more beautiful. It had the blood-leaved and double crimson for opposites, and the double rose and double white to cross hands. These beautiful plants deserve wider encouragement.

The Japan Judas Tree.—This, introduced a few years ago, is becoming common in our gardens. It does not grow so strong as the American or European species, but is more floriferous, and is much brighter in color. The leaves are more "artistic."

Hardy Ericas.—Amongst hardy ericaceous plants, we have no prettier or more floriferous representative than this European Heath. Its flowers are rosy, most profusely borne, and appearing in April, last through May. It loves partial shade, and is grateful for a peaty soil, but neither is imperative, particularly the latter, for it grows well in friable loam, and it needs no covering in Winter. Its beauty and hardihood should increase its patronage. E. vagans and E. (Calluna) vulgaris also stands well, but a box or frame around it, with a few dry leaves thrown in, helps it to keep a good appearance till the Spring comes.

Rhododendrons at Boston.—We understand that the Rhododendrons and Azaleas of Mr. Hunnewell were particularly fine in flower this season. Mr. H. has done more than any one in America to show how to make these beautiful native flowers successful in cultivation.

Ornamental Hawthorns.—Iowa possesses several varieties of native Hawthorns, or Thorn-

apples, all of which are handsome, and well worth cultivating, not only for their clusters of sweet flowers in Spring, but as well also for their bright red and truly ornamental fruits. The trees themselves may, if cared for, be made to take on highly ornamental forms, fit to occupy a place in any man's door-yard. One growing on the grounds of the Agricultural College, planted five or six years ago, is now an object of admiration to all. Its straight trunk rises for eight feet without a branch, and then a beautiful top spreads suddenly out in an umbrella-like form, reminding one of some of the trees which grow in far-away lands, and with whose forms most of us are familiar only in pictures. But beauty is not the only value of these trees. Their fruits are valuable, and under proper treatment, they might be made much more so. If cultivated, these little apples are much larger than in the wild state. We have some in our collection which are fully three-fourths of an inch in diameter. In taste they are variable, and some trees, even of the same variety are variable in this respect. In general they are considered too small and too seedy for use, but from a very considerable personal examination, we are convinced, that in these neglected fruits we have the wild form from which, eventually, we shall derive something of value. We shall have some of them tested.—*From the "Producer"—Horticulture conducted by Prof. Bessey.*

Darlingtonia Californica.—The finest specimen of this singular plant in Britain is, doubtless, that at Glasnevin, whose flowering for the first time we had occasion to notice somewhere about this time last year; it is just now showing flower again. It was this plant which furnished the splendidly developed pitchers with which the President of the Royal Society illustrated his lecture, delivered before the British Association last Autumn at Belfast. Their dimensions will be probably considerably increased this season, as the plant has been transferred from the pot in which it was growing to a pan of large dimensions, where it will have a larger feeding ground for its roots.—*Irish Farmers' Gazette.*

Hydrangea paniculata.—This Hydrangea, says a correspondent of the *Gardener's Magazine*, has not had the advantage of much puffing, and perhaps is none the better for that reason; but if we take it on its merits, it will puff itself, for assuredly it is one of the finest plants of its class introduced for many years past. In growth and readiness to flower it is a perfect model; it is an accommodating plant to force, and it may be flowered very late in the year when good things are rather scarce—that is to say, at a time when first-class forced flowers are not up to the mark. It is a somewhat curious plant, though a genuine Hydrangea. The leaves are like those of a deciduous Viburnum, or perhaps still more like those of Deutzia scabra. The flowers come in great panicles, green at first, afterwards white. If well grown, the panicles are of enormous size, and last a long time pure and fresh, and look as much like freshly and exquisitely made wax flowers as can be imagined. I have been fortunate enough to secure a good stock of this fine plant, but I really wish I had ten times as many.

Californian Conifers.—We were at the height of about 5000 feet above the sea, in the finest zone of the grandest Conifers in the world. There were the Pitch Pine, or Pinus ponderosa, the Sugar Pine (P. Lambertiana), the white Cedar (Libocedrus decurrens), and the Abies Douglasii, the famous Douglas Fir. The Sugar Pine is remarkable for the size of its cones, which I have picked up more than 16 inches in length, and which may be well described as hanging like ornamental tassels from the ends of the branches. The timber of this tree is said, upon good authority, to be the best in California, and its size gigantic, being not unfrequently 300 feet high, and from 7 to 10 feet in diameter.—*"Over the Sea and Far Away," by T. W. Hinchliff, M. A., F. R. G. S.*

Propagation of Exochorda grandiflora.—It may interest some of your readers who are fond of beautiful flowering shrubs to learn that the difficulty hitherto existing in the propagation of that most graceful growing and ornamental flowering shrub, Exochorda or Spiræa grandiflora, has at last been almost overcome by a French horticulturist, Monsieur J. Goujon, who writes to one of the French horticultural papers to say that the only way satisfactorily to propagate this beautiful, hardy shrub, which is not near as often seen in collection as it should be, is by grafting bits of it on pieces of its own roots as in the case of Tecomas, Glycines, &c. The end of winter or commencement of Spring seems to Monsieur Goujon the most suitable time for putting in the grafts.—*Gardener's Record.*

NEW OR RARE PLANTS.

Cornus mascula aurea elegantissima.—We have already noted a beautiful colored plate is given in the *Florist and Pomologist*. The leaves are scarlet, gold and green, and if it will always come like this, will be one of the most beautiful things grown.

The Yellow Winter Aconite.—Those who can get a few roots of this interesting little plant, will find it a treasure if kept in a somewhat sheltered place. Long before the snow-drop comes they are in flower. We have seen them in gardens in bloom in February.

Iris Iberica.—Most of the Iris are Summer flowers, and very pretty Summer flowers they are; but the Spanish Iris, Iris Iberica, comes in with the Lilac. It is a dwarf kind, and though not so bright in color as some others, will bear inspection.

Ajuga reptans.—It is not many plants that will thrive well under the deep shade of trees. The Vinca minor is one of the best. This is the common "Myrtle Periwinkle." The Lysimachia nummularia does very well if the ground is not too dry. This is known as "Moneywort," a name for which either the round leaves or golden flowers well fit it. Another good thing not so well known is the Ajuga reptans. It thrives admirably in our American climate under the shade of trees, and the pretty blue flowers in May add to its interest.

Exochorda grandiflora.—We have given an occasional notice of this shrub, and as some interest has been excited by recent inquiries, we give the following account, which recently appeared in the *Garden*, on the occasion of a pretty colored plate. The flowers are white, and though we have many white blooming hardy shrubs in May, this has a character peculiarly its own. It seems to thrive very well in our climate: "Although this hadsome hardy deciduous shrub has been in cultivation in this country for nearly a quarter of a century, it has not received the attention it deserves, and is still very rarely seen in our gardens. It is one of the numerous ornamental shrubs introduced from China by Mr. Fortune, who first found it in North China in 1845, and in the following year he collected fruiting specimens of it in the Che-Kiang hills Mr. Fortune took it to be a species of Amelanchier, and sent seeds of it to Messrs. Standish and Noble, of the Bagshot Nurseries, under the name of A. racemosa. It certainly bears a general resemblance to the genus in question, especially in its flowers, but it differs widely in the structure of the latter. The exact date of its introduction I have not been able to ascertain, but it appears to have been first exhibited in 1854, and the same year it was figured in the *Botanical Magazine*, under the name of Spiræa grandiflora. But the general aspect of this shrub is so different from most of the Spiræas, and the flowers so much larger, that, independently of less obvious characters, it possesses some claims to generic rank. It was Dr. Lindley (*Gardener's Chronicle*, 1858, p. 925), who gave it the name which it now bears; and writing at that date, he speaks highly of its merits. One character, which specially recommends this shrub, is its early and long-flowering season, from early in April, onwards. It is a very distinct shrub, and perfectly hardy in the neighborhood of London, flowering profusely on warm soils with gravelly bottoms. Like some of the shrubby Spiræas it requires a little pruning and trimming to keep it neat. It is of bushy habit, and grows to a height of 8 or 9 feet, and probably higher under favorable conditions. There is a plant of it in the collection of shrubby Rosaceæ in the pleasure grounds at Kew, the main branches of which are from 2 in. to 3 in. in diameter at the base. Its botanical affinities are with the genera Stephanandra, Kerria, and Rhodotypus, all natives of the same region."

Triteleia uniflora.—Our Californian bulbs seem to be entering gaily into the pleasures of English gardening. This is what the *Journal of Horticulture* says of one of them: "Some of the most striking beds of Spring flowers in Mr. Barr's gardens at Tooting are those planted with Triteleia uniflora. This bulbous plant is perfectly hardy, and for several weeks during the Spring produces a mass of flowers which cannot fail to be admired. Where the bulbs are planted closely together after the manner of Crocuses, a perfectly level and dense mass of flowers is produced, which resists the effects of inclement weather. When thus grown, and when the beds are seen from a distance, their appearance is white—almost like a covering of snow. A distant variety of this plant is T. uniflora lilacina, which is highly attractive when cultivated in pots."

Japanese Birches.—Mr. Maule of the Bristol Nurseries, has been good enough to send us for determination specimens of two Japanese Birches, which from their large (male) catkins and handsome appearance are worthy attention. One, an upright grower, with the young shoots brownish and dotted with resinous dots, with glabrous ovate leaves gradually tapering to a long point or acumen, with rather closely set prominent nerves, and irregularly serrated leaves, and with male catkins 2½ inches long, is, we believe, the B. utilis of Don, or rather that form of it which Regel calls B. Bhajapaltra, Wall., var. subcordata. We prefer to use the name utilis because it is the earlier name, and one not so uncouth to English ears. For garden purposes the varietal name, B. subcordata, would perhaps be the most convenient. The second is a weeping form, with the young shoots brownish, sprinkled with resinous dots. The young leaves are obliquely ovate cordate, rather shortly acuminate, serrate, thinly beset with pale appressed hairs, especially along the nerves, and covered on the lower surface with small circular glandular scales. The male catkins are nearly 3 inches long. This second form we refer to B. ulmifolia, var. costata, which might for garden purposes be called simply B. costata.—*Gardener's Chronicle.*

Oxalis enneaphylla. *Nat ord.*, Geraniaceæ. —In the "Flora Antarctica" Dr. Hooker describes this plant as the pride of the Falkland Islands, where it grows in such profusion at Berkeley Sound, on banks overhanging the sea, as to cover them with a mantle of snowy white in the spring month of November; adding that it is an excellent antiscorbutic and agreeable pot herb, though too acid to be used except in tarts and puddings. When the above was written, this plant was supposed to be confined to the Falkland Islands; it was, however, found in the Straits of Magellan by D'Urville's expedition, and by Lecher at Cape Negro, also in the Straits."—*Bot. Mag.*

Pyrethrum aureum laciniatum.—A most distinct and beautifully cut-leaved form of the "Golden Feather." Perfectly hardy, and in color perhaps more golden than the old "Golden Feather," and of a dwarfer and more spreading habit.—*W. Bull.*

Blumenbachia coronata.—This very pretty plant is a native of Peru. It is a dwarf, shrubby-growing annual, forming handsome tufts about 1½ feet high by 1 foot through. The flowers, which are borne in great profusion, are of a striking orange red color, coronal-shaped, and are about ⅜ of an inch deep by 1½ inches in diameter.—*Garden.*

New Hardy Evergreen Flowering Shrub, *Hypericum patulum* (*Thunb*).—This magnificent shrub is a grand acquisition to our scanty list of hardy flowering species. Its individual flowers, which are produced in bunches, are pale yellow in color and of great substance, resembling much in appearance the beautiful Gardenia javanica of our stoves. It continues long in perfection, commencing to flower in June, and has been in fine perfection till the first week in November. We can endorse all M. Carriere says of it in the *Revue Horticole* of May 1st, 1875 (it is also figured there): "This is a species we feel convinced is destined to create a sensation in the horticultural world. It seems, in fact, to unite all the qualities desirable in a plant—hardiness, vigor, fine evergreen foliage, flowers large and numerous, a free-flowering habit, prolonged from June without interruption till the frost comes."—*Vietch.*

SCRAPS AND QUERIES.

Double and Single Tuberoses.—V. asks: "Will double tuberoses turn to single ones? Though I 'weed' mine every year, there are always some come. I thought at first they were mixed, but now I think they run back."

[Yes, in this climate there is a great tendency in the double tuberose to return to its original single condition. Some seasons this is much more the case than in others. The season of 1876 was very favorable to single flowers.—Ed. G. M.]

Xanthoceras sorbifolia.—Mr. Saul writes: "I forward to your address by mail a few blooms of the beautiful Xanthoceras sorbifolia. My specimen plant, which has stood out uninjured the past three Winters without the slightest protection, is covered all over from the centre stem to tips of the branches with racemes of its lovely flowers. It is unquestionably one of the finest hardy shrubs which have been introduced for years."

[We quite agree with Mr. Saul in the estimation he places on it.—Ed. G. M.]

Propagation of Evergreens by Soft Wood Cuttings.—A subscriber from Kentucky writes:

"I should be glad to see a practical article in your excellent journal on the propagation of such evergreens as Arborvitæs, Junipers, Retinosporas, &c., by soft wood cuttings, time the cuttings should be made, the degree of heat to be used, and the amount of air and sun's rays, each to be treated. Also treatment for the first year."

[Where but a few hundred each are required, the cuttings may be put into shallow boxes of sand in September, October, or November, and kept through the Winter in a greenhouse, or similar place where a temperature of about 65° is maintained. They will be rooted sufficiently to plant out under a slight shade the next Spring. If put in later, or kept under a lower temperature, they root more slowly, and the boxes of cuttings are best left undisturbed for a year. On a larger scale, the cuttings are put directly in sand on the tables, instead of in boxes.—Ed. G. M.]

Plant in an Ant Hill.—A. L. S., Utah, asks, but we cannot tell, "Why is it that Œnothera cespitosa will grow luxuriantly around and on ant hills, while every other kind of vegetation is killed out for many feet from the hill?"

Green House and House Gardening.

SEASONABLE HINTS.

It is yet too soon to think much about house-plants, which are still in pots in the open air, or growing in the open ground, preparatory to being potted next month. But it is well, if the pots are standing on the earth, to lift the pots once in awhile, or twist them round, so as to check the roots which may be running through the bottoms of the pots. Early flowering things not yet potted, such as Violets and Primroses, may be put at once in pots, so as to be well established before housing time comes.

Seeds of many things may also be sown for winter and spring blooming, particularly Cineraria, Calceolaria, Pansy, Daisy, Chinese Primrose, and some of the annuals. Great care is necessary with the Calceolaria. The seed is so small, that it rebels at the smallest covering of soil. The best way is to sow it on the surface, water well, and then cover with a pane of glass until fairly germinated; this will prevent evaporation and consequent drying of the seed. Almost all kind of seeds germinate most readily in partial shade; but as soon as possible after germination, they should be inured to as much light as they will bear.

Preparations must now be made with a view to stocking the houses for the next Winter and Spring's use. Geraniums of all kinds may now be readily struck. A frame in a shady place, set on some light sandy soil in the open air, affords one of the best places possible for striking all kinds of half-ripened wood. A partial shade is at all times best for cuttings at the start, though the sooner they can be made to accustom themselves safely to the full light, the better they usually do.

COMMUNICATIONS.

CAMELLIAS IN COLD FRAMES.

BY W. FALCONER.

We have here a few single-flowered Camellias, which on account of our crowd of tropical plants are denied greenhouse space; hence we winter them in a deeply sunk cold frame, which has no covering in Winter beyond single sashes and single wooden shutters. These plants are not in pots or tubs, but each one has amassed a ball of roots. Late in April, or early in May, they are planted out, and on the approach of Winter are lifted and heeled in the frame. As might be expected, they live unscathed, but this year each Camellia was as full of blooms as any specimen in Hovey's Conservatory, and too, these blooms expanded fully, and were large and bright, and at their best in early May. Not a bud dropped.

IMPROVED CINERARIAS.

BY F., BOSTON, MASS.

At p. 140 of the May *Monthly* you refer to the recent change in Cinerarias, and mention the dwarf-habited sorts with large flat heads of bloom and closely packed flowers. Mr. Paterson, of Oakley, Mass., surpasses anything in the way of Cineraria growing, I have seen in this country or any other, and although for years I attended every London flower-show, I never saw anything to equal Mr. P.'s plants as regards size, health and multitude of flowers. James of Isleworth and a few others who reduce Cineraria excellence to the florist's nicety of bloom, might not countenance the varieties, but as a batch of seedlings, the majority of the plants had a size, purity, brilliance and symmetry of bloom that were quite remarkable, and plainly showed the result of carefully selected home-saved seeds. The flower-heads of Mr. P.'s plants averaged from 18 inches to 3 feet in diameter, and as dense as ever blooms were on an Azalea.

Incited by glowing descriptions of the improved dwarf strain, Mr. P. imported seeds, and raised therefrom a set of plants in every way treated alike with his own strain. The result was disappointment. The plants were stocky with dense flower-heads, but the blooms were small, washy and of great sameness in coloring; besides, for conservatory decoration or for cut flowers, they were inferior to his own old kind.

ADIANTUM FARLEYENSE AS A ROOM PLANT.

BY MRS. C. E. M.

I notice that one of your contributors writes of this as not doing well except in a greenhouse atmosphere, and where a temperature of 65° is maintained. This may be so where very fine specimens are desired, such as we see now and then at the Horticultural exhibits, but I find that it does quite well enough to satisfy any lady gardener who has no greenhouse, as a common window plant. Last winter a year, a kind friend in New Orleans gave me a nice plant as a memento. It was in a five-inch pot, and I brought it North with me in my trunk. Coming from a hot-house, the leaves were much injured by a week's confinement, but it soon put out new ones. Several florists who saw the plant told me that as I had no greenhouse, I could not raise it, and begged me to give it to them. But it is now, after eighteen months, better than when I brought it. I treat it just as the other window flowers. It is set out under the shade of the shrubbery in Summer, and in Winter stands with Fuchsias, Geraniums, and such like. The room is often below 45° at night. I am quite delighted with my success with it, after the florists predicting failure.

BOUGAINVILLÆA SPECTABILIS.

BY W. FALCONER.

Although a native of tropical South America, this gorgeous climbing shrub feels quite at home with us in our Acacia house, which is an airy house with a Winter night temperature of 38° to 42°. It is growing in a shallow tub, in a compost of turfy loam with a little peat and leaf soil, and is trained up a pillar, thence along the top of the house. In Summer we give it lots of water, but in Winter keep it as dry as a Cactus. About the 10th of April its paniculate inflorescence and wealth of showy rose-colored bracts become conspicuous and last all through May.

EDITORIAL NOTES.

PHYSIANTHUS ALBENS.—Prof. Thurber says the prior name, and therefore the one to be adopted as the correct name of this pretty greenhouse plant, and excellent Summer border flower, is Arauja. This makes the third name in Horticultural history—Schubertia and Physianthus being the old ones.

THE ARTILLERY PLANT FOR WINDOW GARDENS.—A lady friend of ours has a large specimen of this curious plant, which she has grown since last Fall, in her kitchen window, and it has given her more satisfaction than all her other window inmates. It kept constantly green and growing, and as sunlight increased, its mantle of miniature muskets thickened, till now it represents a model umbrageous tree, with boughs so succulent and heavy, that a rough shake or breath would seem to shatter them. Associated with Oxalises, Mahernia verticillata, Petunias, and a few others, it made January look like May. A great addition to this kitchen window in midwinter was the festooned drapery of the Madeira vine.

Sericographis Ghiesbreghtiana. — Where Winter flowers are in demand, this Acanthad should not be omitted. It is a neglected, but serviceable species, freely producing elegant racemes of pretty bright red flowers that in a cut state or on the plant keep in good condition for a long time. It is a stove or warm greenhouse, soft-wooded plant, that grows freely from cuttings. To have good plants for next season's use they should have been propagated from the young shoots that immediately succeed the flowers, but we are not too late yet.

A Conservatory on the Roof of a Hotel.— That excellent plan which we have so often advocated, of turning the tops of houses in cities into gardens, has been carried out by the Palmer House in Chicago; and a portion of the roof of that hotel is now covered with a magnificent conservatory. The structure is entirely of glass and iron; and as it is built on an extension, its location is such that it opens directly out of the fifth floor corridor of the main edifice, which rises some two stories above. A fine collection of tropical and rare plants has been provided, and the regular heating apparatus of the house supplies ample warmth. The conservatory is open to guests of the hotel, and furnishes a delightful resort.—*Scientific American.*

White Bouquet Flowers.—A cheap method of obtaining these at this season is to pot up some small plants of Laurustinus, or, better still, to have them established in pots ready for introduction to the forcing-house. Some grow Laurustinuses as standards for purposes of indoor decoration as well as for cut flowers, and under glass the blossoms come pure white, and look so different from those of Laurustinus not so treated that when arranged in bouquets, the flowers might readily be mistaken for something less common.—*W. W. H. in Garden.*

Kennedya rubicunda. — As a greenhouse climber, this old favorite still maintains a front position, as it grows so thriftily, blooms so profusely and persistently, and adapts itself to the coolest treatment; that is, keeping away from frost. Its pea-flowers are of a dark red color and produced in axillary racemes. It is a good subject for amateurs, requiring but little care, and blooming from January onwards, throughout the Summer, providing a little thinning is observed and the seed-pods are picked off as they appear.

Culture of Richardia (Calla) Æthiopica.— Visitors to Covent Garden Market are often struck with the luxuriance of growth and the fine flowers seen on the examples of Richardia Æthiopica (Arum Lily) brought there by those who grow these plants for market. They are grown in 48 and 32 pots, and the fine development of the plants seen in the smaller size constitutes a remarkable example of successful culture. The Richardia is propagated by means of the young offshoots thrown up from the root-stocks. They are taken off at any time when they can be had, and put into pots and boxes, and grown on into size. Those strong enough to make flowering plants in Autumn are potted into 48 or 32 pots according to their size, and they are then stood out-of-doors, and covered with a bed of rotten dung to the depth of 4 inches above the pots. The plants have plenty of water in Summer, and in very hot weather good supplies are given as often as three times a day. Plants treated in this way are taken into warm plant-houses in October and November, where they throw up their flowers at Christmas. The number grown varies according to the space at service. Mr. John Reeves, of Acton, usually markets from 2,000 to 3,000 plants each year.—*Gardener's Chronicle.*

Nierembergia gracilis as a Window-Plant.— A lady of our acquaintance grows this plant in her window-garden with good results. Towards Winter it is laid aside where frost cannot reach it, and though getting occasional dribblings, it is considerably neglected. Towards Spring it is promoted to the kitchen window, and gets more liberal libations. By mid-April blooms appear, till its straggling branches, which are supported on a light wooden trellis, become mantled with bluish flowers that continue coming, more or less, according to treatment, till next Winter.

The Ivy-Leaved Geranium.—The Ivy-leaved Geranium (P. peltatum), "Geranium Ivy," or "Flowering Ivy" as it is often called by cottagers, with whom it is a special favorite as a window climber, was raised in the Duchess of Beaufort's garden in 1701 from seeds brought from the Cape. It spreads very rapidly in English gardens. Petiver, in the *Philosophical Transactions* for 1713, writes of it as follows:—"This is a spreading low plant, with shining, thick, juicy, tart, round, umbrella leaves; those towards the flowers are angular and pointed: its tassel flowers are large, of a blush color; the

petals are of the same size, and the two uppermost streak'd with red. It flourishes most part of the year at Chelsea, Fulham, Enfield, &c. It grows wild in the districts of Haycoon at the Cape of Good Hope."—*Gardener's Magazine.*

To Prepare Vegetable Mould Quickly.—As early in November as the leaves of trees can be collected, let them be brought in a considerable quantity, into a close place, and dressed up there in the form of a hot-bed. Let this be well saturated with the drainings from the dung-heap, with suds from the wash-house, with urine from the stable and cow-house, where this latter article can be procured. Let this bed or heap be covered and lined with fresh stable dung, to make it heat. When the heat is sufficiently subsided, let the leaves be uncovered and turned over, to mix the dry and the wet well together, and if moisture be required, let them have it of the same description, repeating the process till all be reduced to fine mould. This will be ready for use in two months from the time of collecting the leaves, and to prevent any waste of the liquid recommended, a layer of maiden earth, of two feet thick, should be made the substratum, which would receive any of the valuable liquid that would otherwise run to waste. Leaves of slow decomposition should be avoided, as those of the oak, &c., which, however, are the best for retaining heat in hot-beds and pits. The leaves of Fir should also be avoided, but those of the Sycamore, Elm, Alder, Maple, and all the soft kinds are better suited for the purpose. This compost should be kept dry, in an airy place, and ridged up, so that the rain cannot wash out the salts with which it abounds. —*Gardener's Record.*

Solanums.—The berry-bearing Solanum capsicastrum and S. Pseudo-capsicum have a very much better appearance when grown in the open ground and transferred to pots in the Autumn than when grown all through the Summer under glass, as outside they assume a much closer habit, and the foliage becomes more dense and better in color, than it can be had in pots, even with the best attention. Under pot culture if ever the plants be allowed to suffer from want of water the leaves always turn to a yellow, sickly color; besides there is invariably a difficulty in keeping down red spider; under open ground cultivation it is essential to plant them out early if their berries be required in a ripe state early in the Autumn. Solanums are much hardier than they are generally supposed to be; 10° or 12° of frost will not seriously injure them. Plants that have been used through the Winter should be cut back, reducing them to one-third their size, turned out of the pots (removing most of the soil without breaking the roots more than can be avoided), and at once planted 18 in. apart in a sheltered situation fully exposed to the sun. If the soil be not of a loose, open nature, it must be made so by the addition of sand or vegetable mould of some kind, for if the material in which they are grown be of an adhesive character, when they are taken up for potting, the roots will get broken to an extent that will seriously injure them. Young plants of these Solanums struck from cuttings and raised from seeds some weeks back may be planted out in a similar manner, but previously they must be sufficiently hardened off.—*Garden.*

Leaves for Garnishing Fruit.— Some kinds of leaves are more suitable than others for this purpose. Strawberries for instance, look best associated with their own foliage; Grapes may be laid on their own leaves, but there are others which suit them quite as well. One of the best plants for furnishing leaves for garnishing all kinds of fruit is the Curled Mallow, an annual of which I make three sowings in a year in rich soil—the first early in April, the second about the beginning of May, and the third about the same time in June. The leaves are about the size of small vine leaves, and beautifully frilled. Wherever fruit has to be garnished, this plant should always be grown. The Ice-plant also furnishes good leaves for Summer garnishing, its glistening, icy appearance having a cool and pretty effect on the table. It should be sown in a pan or box, in heat, in the first or second week in April, and planted out in the open border in May. These are the only plants which I grow for garnishing fruit in Summer and Autumn. In Winter and until this time variegated Kale and Bay leaves answer the purpose. Bay leaves are rather stiff for Grapes, but for Oranges, Apples, &c., they may always be used with good effect.—*A Northern Gardener, in Garden.*

To Preserve the Natural Colors of Dried Plants.—The following method of doing this is given in a German pharmaceutical journal, and will interest botanists and others: Dissolve one part of salicylic acid in 600 parts of alcohol, heat the solution to boiling in an evaporating-dish, and draw the whole plant slowly through it,—prolonged exposure discolors violet flowers;

shake off any excess of liquid, dry between blotting paper, and press in the usual manner. A frequent renewal of dry blotting pads, particularly at first, is desirable. Thus treated, plants are said to dry rapidly, furnishing beautiful specimens, which retain their natural colors in greater perfection than by any other process.

Bouquet Flowers.—Amongst other blooms at present obtainable for bouquet making may be enumerated the following, viz.: Azaleas, Bouvardias, Camellias, Carnations, Cinerarias, Cyclamens, Deutzias, Ericas, Eucharis, Euphorbias, Fuchsias, Gardenias, Heliotrope, Hyacinths, Heaths, Lily of the Valley, Mignonette, Narcissus, Pelargoniums, Primulas, Roses, Snowdrops, Spiræas, Stephanotis, Violets, and white Lilac. Button-hole bouquets consist generally of a Rosebud, a half-blown Camellia or Gardenia, and some other smaller flowers. A pretty flower for these miniature bouquets is the blue Forget-me-not, obtained by lifting a few clumps of it from the open ground, potting them, and placing them in a warm house, where they speedily open their blooms and afford a stock to cut from. If placed with a Gardenia, the blue Forget-me-not forms an effective contrast; but, with such a selection as I have enumerated above, both hand and button-hole bouquets may be made to suit all tastes. —*A. Hassard, Upper Norwood.*

Best Tea Rose.—Probably no plants are more attractive at this period of the year than Tea-scented Roses. Amongst a large collection now flowering in Mr. Merryweather's nurseries at Southwell the following varieties are particularly beautiful: Aline Sisley, Catherine Mermet, Climbing Devoniensis, Devoniensis, Gloire de Dijon, La Boule d'Or, Madame Bravy, Madame Willermoz, Letty Coles, Louise de Savoie, Marie Van Houtte (very beautiful), Marie Guillot, Niphetos, President, Souvenir d'Elise, Souvenir d'un Ami, Souvenir de Paul Neron, and Marechal Niel. The new Hybrid Perpetuals Comtesse de Serenye and Duchess de Vallombrosa are proving valuable for forcing.—*Journal of Horticulture.*

NEW OR RARE PLANTS.

Improved Petunias.—The latest novelty in Petunias is "fimbriated," or, in plain English, fringed double ones. We have not yet seen living representatives, but by pictures they seem a decided advance in beauty.

New Fuchsia—*Earl of Beaconsfield.*—As a useful, early, free flowering and handsome Fuchsia, we can strongly recommend Mr. John Laing's valuable hybrid, the Earl of Beaconsfield. We saw in the Royal Horticultural Society's gardens at Chiswick, the other day, some plants which, after being cut back, broke into flower almost at once, while other varieties were, comparatively speaking, at a standstill. This is a valuable character, and should increase its popularity.—*Gardener's Chronicle.*

Lygodium scandens (*Japanese Climbing Fern*).—A most graceful climbing plant, growing from one to fifty feet as desired. It is quite as easy of culture as the Smilax, and will no doubt be largely used for similar purposes in decorating. Although a climbing plant when supported by strings or wire, it can be used with equal advantage as a drooping plant for baskets or vases.—*P. Henderson.*

The Brisbane Lily.—The beautiful amaryllid Eurycles australasica, which has recently been exhibited by Messrs. J. Veitch & Sons, is of unquestionable value for furnishing cut flowers at this season of the year, and as it becomes better known it will doubtless be highly appreciated. It is not, strictly speaking, new, for it was known to science in 1821, but it has for a very long time been so rare that very few cultivators of the present day are acquainted with it. The flowers, which are of the purest white, may, when neatly mounted, be employed to wonderful advantage in the formation of hand bouquets. As in the case of many other bulbous plants, a succession of bloom extending over a considerable period may be had by starting the bulbs at intervals of a fortnight or so. This species, as indicated by its name, is a native of Australia, and is sometimes known as the Brisbane Lily.—*Gardener's Magazine.*

Improved Begonias.—In the early history of improved flowers, the best are selected and named. This was once the case with Pansies, Cinerarias, and other things, long lists of the names of which appear in the gardening publications of thirty years ago. After awhile, they become so numerous that any one can raise good kinds from seed, without the trouble of

keeping over old plants, and then good seed only is looked for. The tuberous Begonias are now going through this ordeal. The varieties are so numerous, growers cannot keep up with them, nor newspapers make records of their appearance. Cannell, the great improver of florist's flowers, is now advertising "choice seeds," and this foreshadows the fate of named varieties.

DÆMONOROPS PALEMBANICUS.—One of the most elegant of Palms, and, together with D. periacanthus, exceedingly appropriate for table decoration and other ornamental purposes. The leaves



DÆMONOROPS PALEMBANICUS.

are broadly ovate, pinnate, consisting of numerous narrow elongated segments, and they are supported by leaf-stalks bearing numerous deflexed spines, which latter are thickened at the

base. The young leaves are of a bright cinnamon brown, and the contrast between this warm color and the deep green of the matured leaves renders the plants exceedingly beautiful at the time they are in course of development. It is a native of Java.—*William Bull.*

CENTAUREA RUTÆFOLIA.—This new and distinct species will probably find a home in our flower gardens. It is a native of the Balkan region, and is said to form a handsome silvery pyramid when in flower. It will probably prove hardy in dry soils in Winter. It has, I believe, been sent out by Messrs. Froeble, of Zurich.—*J. G., in Garden.*

NEW DOUBLE IVY-LEAVED PELARGONIUM—*King Albert.*—This originated as a chance seedling in the garden of Herr Oscar Liebmann, of Dresden. It has the semi-succulent glossy foliage peculiar to the single flowering forms of this class, but the clusters of flowers are much larger, and the individual flowers being very large and double, remain perfect a long time. The color is purplish lilac, striped and feathered with crimson.

ANTHURIUM CRYSTALLINUM.—This beautiful species is certainly one of the finest introductions of late years. It produces large, cordate, acute leaves, of a leathery consistence. The emerald green refulgent leaves are spotted all over with a brighter shade, and bordered by a broad silvery or rather crystal band, which surrounds the intramarginal and four secondary nerves. These dazzling white zones are so distinct and regular that they resemble a border of incrusted silver around the sections of the blade of the leaf. The effect of this highly ornamental plant is most striking. The young leaves are of a violet purple, forming a marked contrast with the older, deep green leaves, divided into squares by silvery bands as we have just described.—*John Saul.*

SCRAPS AND QUERIES.

TABERNÆMONTANAS.—"One interested" writes:—"What is meant in Mr. Saul's description of Tabernæmontana camassa by 'small plants in 60 pots will produce flowers freely?' Is sixty a lucky number? Also, would Mr. Saul or some other practical man, describe the difference between T. camassa and T. coronaria flore plena; as the description of the former variety depicts exactly a plant I had under the latter name, planted in my front yard last Summer, which had upon it, in various stages of development, upwards of 1,000 buds and flowers, but owing to some cause, not more than twenty-five flowers opened perfectly—the balance dropped prematurely. The hot and dry weather, no doubt, had something to do with it, but the plant showed no other signs of distress, as it made a good growth, and wore a healthy appearance, generally. A few hints on the successful culture of Tabernæmontanas in general, would, I think, interest others. My plant is about two feet high, and eighteen inches through."

FRUIT AND VEGETABLE GARDENING.

SEASONABLE HINTS.

August is the commencement of the real American fruit season. The "small" fruits, from strawberries to currants, have kept us going pretty well, but we are now to enter on apples, pears, plums, peaches, grapes, and others all in good earnest.

Still, we must not forget our old friends in the small fruit line. Strawberries must be kept clear of weeds, and useless runners cut away; gooseberries must have the soil kept cool about the roots by mulches of one kind or another; blackberries should have their useless suckers kept down, and as soon as the raspberry crop is over, the shoots that bore the fruit should at once be cut out, and all the suckers not wanted for fruit the next season thinned out and taken away. These two points are very important in raspberry culture. When rightly managed in this respect, very few crops are more reliable or more satisfactory to the grower than this. Though useless shoots should be cut out, the ground

should be disturbed between raspberries and blackberries as little as possible. Their little roots are all on the surface. They have no deep roots, and so are very liable to injury by the process erroneously termed "cultivating." Every one will tell you that the raspberry soon "runs out;" nobody knows the reason. The new seedling comes out, and it is hardy enough. But in a few years it gets leaf blight, and then Winter kills. It is the injury to the roots that brings about all this.

In earlier hints for this department we have written of the importance of pinching off any strong shoots that may appear at the top of young fruit trees, and which if left would render the weaker ones at the base still weaker. Since that early pinching, in very vigorous trees, a new crop of strong young shoots may have appeared at the top of the tree, which should again be taken off, and the lower branches will be much benefited thereby.

This matter of pinching out strong growing shoots to strengthen those which we wish to become strong, is an essential point with those who require handsome shaped trees, and is of course applied in the infancy of the trees, when many hundreds may be gone over in a day. It would be a great expense, besides unnecessary with these objects in view, to go over a large orchard and pinch out the shoots. These remarks apply to the grape vine, as well as to the pear, and indeed, to all kinds of fruit trees.

In the vinery many parties commence to force grapes at the end of this month, but those who attempt this branch of the gardening art are already so well skilled in its details as to derive little advantage from any hints we could offer here. In the cold vinery, the vines will now be ripening their crops, and will require little attention beyond stopping laterals, and as much as possible destroying insects that may endanger the health of the foliage.

EDITORIAL NOTES.

Wearing out of Varieties of Apples.—The Apple does not seem inclined to run out, notwithstanding the prophecies made about varieties fifty years ago. An English clergyman of Herefordshire says:—"One of the earliest historic Apples is the Pomeroy or King's Apple. This Apple is of extreme antiquity, very little being known of its early history. In Hogg's 'Fruit Manual' (a work most judiciously added by Dr. Bull to the Free Library), and from whose descriptions I have largely borrowed, two distinct varieties are mentioned in use nearly at the same time, but differing altogether in shape, flavor, quality, and color of flesh. I take particular interest in this old and highly valuable variety, because in my parish we have three or more very old trees still flourishing, and I was glad to see this Apple shown from many parts at our late exhibition."

Scion and Stock.—At a recent meeting of the Royal Horticultural Society, Mr. Worthington G. Smith exhibited a drawing of a singular grafted cherry tree, now growing near Harpenden. The point of attachment between the stock and scion is seven feet from the ground line. The smooth stock (wild cherry) is upwards of three feet in circumference, whilst the gnarled and rugged scion is more than six feet in circumference. The sudden disparity in size of the stem gives the tree an extraordinary appearance.

War on the Insects.—An "Insect Society" is said to exist at Grand Traverse, to encourage people to destroy insects. It is said that whereas not five per cent. of the fruit matured, before the Society went into operation, over seventy-five per cent. is now the crop.

Bearing Age of Pear Trees.—There is an impression that it is an "endless" time to look for, before the pear tree, set out, bears; but a beginning is generally made with fruit in three or four years from planting a grafted tree. Even a seedling tree is not as long in coming up to the work, as people often think. In this connection we may give the following from a Western paper:—"Thirty-five years ago M. A. Wilkinson planted a pear seed, which is a tree now, on a farm owned by Dennis Nelson, near Dunlap, Peoria Co., Ill. This tree is of course a seedling, and bore thirty bushels of pears in 1875, which sold at the rate of four dollars per bushel. The product for 1876 was forty bushels and sold for about three dollars per bushel. Total result in two years $250. Who can beat this? The tree is said to have proven as hardy as an oak. Mr. Nelson says he has owned the farm for twelve years and has not failed in this time to get a fair crop. Its keeping qualities are good. Will keep until Spring; like a Winter apple."

Packing American Apples.—A Dublin correspondent of an English Horticultural journal is astonished that American apples get there without any packing material, "nothing but the apples." Brother Jonathan has learnt that an apple tightly packed cannot bruise, and packing material is only of use to avoid bruising. We must apply this to the pear, and then, perhaps, can get a European trade in them also. With some air-tight material around such fruit, pressure will not perhaps rot them.

Origin of the Los Angeles or Mission Grape.—As our readers know, our people found the grape quite at home in California when the country became a State in our Union. The grape is of the European species—Vitis vinifera—and to-day all kinds of foreign grapes do just as well as American kinds do here. There need be no mystery about the origin of the grapes at Los Angeles, for a "missionary," or any other person, had only to sow some seeds of a raisin to get them; but, as the following is getting extensive circulation, and may mislead those interested in grape history on this continent, we give it in order to say that the Vitis vinifera is not a native of Mexico :—"Le Roy Gomez writes from the Sandwich Islands to the *Bulletin* concerning the origin of the Mission grape as follows:—Universal tradition among a people, if not history itself, must be accepted as the basis of history, and a residence of many years in Mexico, and a thorough inquiry relative to the origin of the grape in that republic, has resulted in the conviction that the Mission grape is indigenous and originated in the wild grape of northern Mexico.

"The colonial policy of Spain prohibited the cultivation of the grape and the manufacture of wine in all of her American possessions. The vine was never introduced into Mexico during the colonial dependency, from any part of Europe. Its cultivation was contraband, and the little that was carried on was done clandestinely by the priests in the more northern missions.

"After the expedition of Coronado had awakened the spirit of adventure toward New Mexico, various military expeditions were sent out in that direction. One of these expeditions in traversing the vast region known as the Balson de Mapemi, discovered among the hills in which arise the springs that form the stream flowing into the Laguna de Los Parras, a quantity of delicious grapes growing wild. From the trailing of the vines over the rocks and trees, they called the place Parras. On their march northward they came to the source of the Rio Concha, which flows into the Rio Grande del Norte. There they also found grapes of the same variety growing wild,and they called the place Parral, a name also significant of the trailing of the vines.

"From these two sources spring all the grapes in Mexico, including the Mission grapes, which, according to tradition, were brought overland from El Paso del Norte to California."

Hardiness of the Japan Persimmon. — We shall be glad to have any information about the hardiness of the Diospyros kaki in the Eastern States. About four Winters ago, some six rather strong plants in the possession of a friend of the writer's, were killed; but as the roots of young native Persimmons, Walnuts, Liquidambars, Silver Thorns, and many kinds of plants usually hardy, were also killed, it was thought to be exceptional. The past Winter has not been regarded as exceptionally severe on deciduous trees, but a plant of the Japan Persimmon has been killed to the ground. But it was not a strong plant. How is it elsewhere?

The Apple State.—The celebrated Thomas Andrew Knight once said of England's famous Apple district, "Herefordshire is not so much indebted to its soil as to some valuable varieties." This is probably true of many of our own celebrated spots. New York has had the reputation of being the great American apple State, but how much of this was due to its Newtown Pippins (now failing) and to the fine Baldwins and Greenings which it produces? When other States take so much pains to find out just what are best suited to themselves, instead of following up the experiences of orchardists elsewhere, we may have a great many great Apple States.

The Wilder Pear.—The California *Farmer* speaks in high praise of this variety. In comparison with Glout Morceau and other well-known very late kinds, it is far superior. The *Farmer*, by the way, gives an excellent portrait of Col. Wilder, with its account of the Wilder Pear, thus giving those of its readers who may not be able to attend the next meeting of the Am. Pomological Society at Baltimore, a chance at least to see what their President looks like.

Popular English Apples.—Fruit shows are

much more popular in England than they used to be. It is interesting to note that the Ribston Pippin and Blenheim Pippin seem to be in every collection, no matter what other kinds may be absent. They must be widely grown there.

Billyeu's Late October Peach, (*Syn. Billyeu's Comet*).—A correspondent of the *American Farmer* says this promises to be a very valuable late free-stone Peach. We have given its history in our volume for 1876.

Early Beatrice and Early Rivers Peaches.—A correspondent of the *American Farmer* from the Eastern shore of Maryland, says these varieties have "seen their best days with him."

The Turner Raspberry.—This seems to be the next best variety when the Philadelphia fails. Mr. Galusha tells the *Western Rural*:—"I have between three and four acres of raspberries, consisting of Turner, Philadelphia, Mammoth Cluster, Doolittle and Davison's Thornless; all of which, except Turner, were killed to the ground by the extreme and sudden cold in December. The Turner is all right. Last year my plantation of Turners averaged one hundred and twenty-eight quarts per row, of twenty rods long, on or over one hundred bushels per acre, while neither of the other sorts produced more than half that quantity. The Philadelphia, will, of course, produce more than the Turner when not injured, but I have had only one full crop from it in four years. The suckers are numerous, to be sure, but they are as easily destroyed, while young, as ordinary weeds; indeed, if the plants are cultivated in continuous rows, no more work is requisite to produce a full crop than farmers ordinarily give to the same quantity of ground planted to corn."

Grape Forcing.—This interesting department of the art of gardening is not often met with in America—most grape-growers depending on the natural results of the cold grapery. They are, however, among the easiest of fruits to force and it is a matter of surprise that those who can afford it, do not oftener indulge in the luxury.

New White Grapes.—Well-grown clusters of the late Mr. Pearson's seedling Grapes, Golden Queen and Mrs. Pearson, were exhibited last Wednesday at South Kensington, where they were much appreciated for their handsome appearance and good flavor. As a golden-skinned variety for market purposes, Golden Queen is likely to be valuable. Mrs. Pearson, although less showy, is delicious in flavor, and should henceforth find a place in every Vinery.—*Garden.*

Gros Colman Grape.—Of this fine grapehouse variety, the *Journal of Horticulture* says:—"In one or two of the principal fruiterers' windows in Covent Garden Market may now be seen some magnificent examples of Gros Colman Grapes, each bunch of which cannot weigh less than from 2 lb. to 3 lb., and the berries are the largest and the finest we ever saw. These, we are informed, have been grown at the Tweedside Vineyard by Mr. W. Thomson, and most certainly they are wonderful examples of skilful modern grape culture."

The Sabre Pea.—The Sabre—so called from the form of its pods, Messrs. Vilmorin, Andrieux & Co. tell us—is the most highly estimated



for its earliness and productiveness, of all grown by the market gardeners near Paris. We

have not seen it in our country, but here, where earliness is so much prized, it would be well to give it a trial.

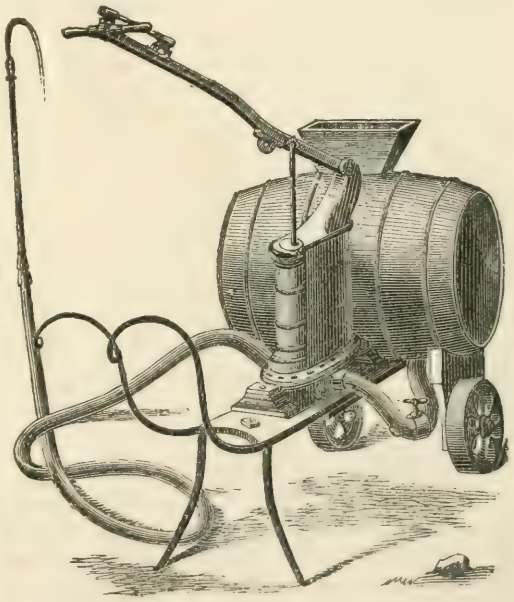
Dandelion Salad.—It is a wonder that some attention is not given to improving this, so as to make it a standard garden vegetable. In this part of Pennsylvania the fields and fence rows have numerous dandelion gatherers about them in early Spring, and the salad bowl they prepare is welcomed by the whole family. We have known roots to be dug in Fall, and to be set thick under a hot-bed sash, with a mat thrown over as they grow, to blanche them, and think the product much superior to Lettuce or Endive.

Celery Fly.—The larvæ of the Celery Fly (*Tephrites onopordinis*) in some seasons do much mischief to the Celery crops, and as yet no effectual remedy has been discovered. When celery is infested with the larvæ the leaves become blistered and turn yellow, and as the grubs are underneath the blisters, they may be crushed between the finger and thumb. The grubs, when full-grown, descend into the earth, and remain in the chrysalis state until the following Spring, when they give birth to the fly, which in due course deposits the eggs on the leaves. Therefore, to prevent the attack of the pest the next year, leaves badly infested should be removed and burnt, to prevent the grubs attaining their full development.—*Gardener's Magazine.*

Carrots.—One of the most delicious of vegetables at this season of the year is the Early French Short Horn Carrot, sown in July. The French cooks are fond of these little Carrots for culinary purposes, and in large establishments it is usual to sow a good breadth of them in Summer. The ground needs to be deeply dug, and be light and rich on the surface. The best plan is to sow in drills, somewhat thinly, and then no thinning-out is required, as it is the practice to pull the Carrots when about the size of a man's forefinger, and the strongest plants soon reach that stage. In France the custom appears to be to sow in September to get an early crop in May, but by sowing in July a crop is had in October and onwards; and by giving the lines of plants some shelter during frosty weather, after a little soil has been thrown upon them, a supply of delicious little Carrots is had all the Winter. The French Short Horn Carrot is distinguished from the ordinary Early Horn by its shorter but equally plump handsome root, and is much more deserving of out-door culture during Summer than the measure of approval usually accorded to it would indicate. It is an early and most profitable crop, making but a spare upward growth, and therefore it can be grown more closely together than is usual with Carrots. The fact that it is beginning to be found on the exhibition table in the case of early shows, may be accepted as a proof that its good qualities are being more largely recognized.—*Gardener's Chronicle.*

SCRAPS AND QUERIES.

A Water Barrow.—F. N., Asheville, N. C., writes: "I have some trouble with the Black Aphis on young cherry trees, and have kept them down somewhat by a hand syringe and water-pot. Can you tell me whether there is any combined syringe and water barrow that would



enable us to get over such work more rapidly? Every garden ought to have something of the kind." Most of our dealers' catalogues contain descriptions of useful wheel engines. One of the best so far is the one we gave in an early number of our work, and which we here reproduce.—Ed. G. M.

Cranberries in Southern Utah.—A. L. S., Ranch, Utah, writes: "Lying near my farm is a lake or pond of several acres. It is surrounded

by lime-stone hills and clay soil. The surrounding growth is Pine and Abies. The water of the lake dries away during the Summer, as it is fed by snows. The growth in the lake is grass and cat tail flag. When it is dry it is loose, and very porous, like ashes, and the soil is filled with minute shells. I can with small expense cut a ditch and put in a gate, so as to draw the water off of the pond early in the Spring, and leave it dry. During the Summer it gets very dry, but not dry enough to kill out the grass and flag roots. There is no chance to flood the land when once dry, without waiting for Winter rains and snows to do it. What I want to inquire is, will it do to break this lake up in the Summer time, so as to kill the present vegetation, and then plant cranberries on it. Can I be certain of a crop by so doing. I see that there are upland cranberries advertised (I have little faith in them), will you tell me whether that variety would succeed any better than the swamp variety? Can I grow apples, pears, cherries, plums, and small fruits on level clay loam that is not too wet? The top soil for eight or ten inches is loamy clay, below that is a kind of yellow or raw clay; and has the appearance of being washed from the surrounding mountains. I have just received some very fine Geranium, Pelargonium and Fuchsia plants from Mr. John Saul of Washington. How shall I manage them so as to have them bloom next Winter?"

[The development of cranberry culture in this part of our country is an important matter. We at this distance hardly feel competent to advise. The impression is, that they could be made to do well there; but the matter is one wholly for careful observation and experiment. We should recommend a perusal of Orange Judd & Co.'s publication on "Cranberry Culture," and then an application as near as possible of what they say to the circumstances and situation.—Ed. G. M.]

FORESTRY.

EDITORIAL NOTES.

TORREYA TAXIFOLIA.—We learn that our friend, P. J. Berckmans, of Augusta, Ga., is making a specialty of propagating this beautiful tree, and which, besides, will always be interesting as commemorating in its name one of the best and most beloved of American botanists.

LARGE WHITE OAK IN MICHIGAN.—Mr. Dow Lyon, of St. Johns, Mich., says he has a white oak growing which at three feet from the ground measures seventeen and a half feet in circumference, and he judges that the first large limb is sixty-five feet from the ground. It is very symmetrical for the first forty feet or so.

GROWING CHESTNUTS FROM SEED.—Mr. J. S. Budd thus gives his experience to the *Western Rural:* "In 1871 I grew about 3,000 trees from seed procured the previous Fall, perfectly fresh in their burr. As soon as received I hulled them and placed them in a common dry-goods box in my cellar, with alternate layers of moss, such as is used for packing plants for shipment, scattering the chestnuts on the moss so as not to come in contact with each other. The moss should be but slightly damp, and if the surface becomes very dry during the Winter, it may be sprinkled, but the moss need not be disturbed until planting time in the Spring, say the 10th or 15th of April. The nuts by this time have nicely sprouted. Long roots will be attached to the moss and adhering firmly to the fibers. This should be allowed to remain and be planted with them, and should the season be dry, the moss will be rather a benefit than otherwise, by retaining moisture about the root. From nuts treated in this way I grew more trees than I planted nuts, as some have double kernels, and produce two trees.

"I planted in drills, four inches apart in the drills, and sufficient space between the drills to use a small garden hoe, the whole occupying less than one square rod, affording a good profit at an average price of $3 per hundred, when sold in the Fall. I have trees eight years old, grown from seed in the above manner, that bore nuts at the age of five years, and at eight years produced a peck of hulled nuts.

"The soil and situation in which to grow the

chestnut is all-important. They flourish best on high, dry situations, or on rolling, well-drained silicious soils, but are impatient of much wet, or low, tenacious localities."

The White Ash in New England.—In a note to the Massachusetts *Ploughman*, Prof. Sargent says: "An intelligent correspondent much interested in the subject of tree planting, writes us from the central portion of the State as follows: 'I am fully convinced that those who plant and care for the ash are sure of their reward. I am informed by experts that the ash is in more demand, and commands a higher price, than any other wood that is indigenous; that the fibre of the ash grown in the New England States is tougher and has more substance than ash grown elsewhere, and that the demand is constantly increasing. During the Centennial Exhibition our woods were closely examined by foreigners, and now foreign orders are rapidly coming in, and every vessel leaving Boston for a foreign port is taking out large quantities of ash and walnut.' The attention of New England land owners should certainly be directed to the profits which the careful and general cultivation of this tree will give, and to the fact, that, at no distant day, the money value of White Ash will be greatly enhanced, the ever increasing demand for it having already rendered this tree comparatively rare in the Eastern States."

Forest-planting in France.—The past Spring has been very favorable to the large areas in France lately planted in forests. It is stated that 5,000,000 hectares, or 12,350,000 acres—about half the area of Ohio—have become unproductive as agricultural lands. Pine trees, without any cultivation, and a very inexpensive supervision, can be made to grow upon these barren acres, netting about $2.50 per acre of annual profit. This would add to the productive capacity of these lands about $30,000,000 per annum. Other trees have been planted with similar economic results, and now landed proprietors are looking to tree-planting as a means of utilizing their unproductive acres.—*Department of Agriculture.*

A new Product from the Pine.—Vanillin exists in the sap of the Pine (Pinus sylvestris) and of the Larch. For the purpose of procuring it the trees are felled during the period when vegetation is most active, and are stripped of their bark. They are then immediately scraped, and the product collected in vessels of tinned iron, is immediately heated on the spot to prevent fermentation, filtered, concentrated and allowed to cool and settle. A substance is thus obtained which resembles powdered sugar, and which is known as coniferin. This is a stable compound, and is sent in barrels to Paris, where the vanillin is extracted. The process of extracting the vanillin is an expensive one, but the product is procured at a less cost than the natural vanilla of commerce can be purchased at. The difficulties in the way are principally in procuring the supply of sap.—*Scientific American.*

Prizes for Arboriculture offered by the Massachusetts Society for Promoting Agriculture.—The following prizes which are open to all land-owners in Massachusetts, will be awarded in 1888, the trustees reserving the right to withhold one or all of them, if, in the opinion of the judges, none of the competing plantations are considered worthy of award: For the best 5000 White Ash trees, $250.00; next best 5000 White Ash trees, $100.00. For the best 1000 White Ash trees, $100.00; next best 1000 White Ash trees, $75.00.

Trees intending to contend for these prizes may be either planted in groves or scattered, as the nature of the soil may require; provided, however, that the plantation does not extend beyond the farm or estate of the competitor: For the best five acres of White Pine, raised from seed planted by the competitor, $250.00; next best five acres of White Pine, raised from seed planted by the competitor, $100.00. For the best acre of White Pine, $100.00; next best acre of White Pine, $75.000. For the best acre of Scotch Pine (P. sylvestris), raised from seed planted by the competitor, $100.00; next best acre of Scotch Pine (P. sylvestris), raised from seed planted by the competitor, $75.00. For the best acre of European Larch, containing not less than 2000 trees, $100.00; next best acre of European Larch, containing not less than 2000 trees, $75.00. All entries for these prizes must be made on or before March 1, 1878, to Mr. Francis Skinner, Brookline, Mass.

Mr. Skinner has consented to act as the agent for the trustees in all matters relating to these prizes, and will furnish all information in regard to them. Competitors may order their seeds and trees through Mr. Skinner, who will arrange with the principal tree and seed dealers and nurserymen in the United States and Europe for the lowest possible rates, but as his services are en-

tirely gratuitous he can in no way be held responsible.

All competitors will be expected to keep as accurate accounts as possible of the cost of forming and maintaining their plantations, and to furnish the trustees, from time to time, with such information in regard to them as they may require.

Thomas Motley, Jamaica Plain; Leverett Saltonstall, Newton; Ed. N. Perkins, Jamaica Plain; Theodore Lyman, Brookline; Henry Saltonstall, Boston; William R. Robeson, Lenox; John G. Cushing, Beverly; Charles S. Sargent, Brookline; E. F. Bowditch, Framingham; Henry S. Russell, Milton; John Lowell, Newton; John Quincy Adams, Quincy.

SCRAPS AND QUERIES.

The Pecan Nut.—M., Lincoln, Nebraska, writes: "Can I hope to raise Pecan nuts so far north as this?"

[There is no doubt the nuts "can be raised"—that is, they will grow, and make trees—but we doubt whether the trees would perfect nuts so far north. But if the trees are wanted for timber in Nebraska, we *believe* they would do; but we have no actual experience. It is the most rapid growing of all hickories. We shall be glad to know how far north our friends know of trees, either wild or cultivated. About Philadelphia there are several fine trees.—Ed. G. M.]

Sowing Walnuts and Hickories.—M., Lincoln, Nebraska: "I sowed a quantity of walnuts and hickories last May, but none of them grew. Is there any special knowledge required to raise these nuts?"

[None that we know of. But the kernels of these nuts soon become rancid, and they rarely recover from a good drying. They will grow in Spring, if they have not been kept too warm or too dry since gathering the previous Fall. The best success follows Fall sowing.—Ed. G. M.]

Growing the Eucalyptus in the North.—. M. B., Philadelphia, says: "I note your occasional remarks on this tree, and think you are scarcely right in your efforts to discourage experiments with it. In view of the wonderful results that have followed its growth elsewhere, why should not people be permitted to try it if so disposed? If they fail, it is little loss; if they succeed, it will be a glorious achievement. Do you know from actual experiment that the Eucalyptus will not do in the Northern States?"

[Our correspondent surely misunderstands us. We have no objection whatever to any one's trying it. As Mr. Price said recently, the cost of the experiments are not ours, and so far as this is concerned, it is none of our business.

But when people ask us whether the Eucalyptus, the Cocoa Nut, the Banana, or the Pine Apple will grow in the far North, we have to say no! And we say this, though we have made no actual experiment with them, nor do we know of any.

All plants and families of plants have certain geographical centres, with which botanists are tolerably well acquainted, and this knowledge is mostly sufficient to decide such questions as these. The Eucalyptus belongs to the order *Myrtaceæ*, and from what a geographical botanist knows of the home centre (so to speak) of the order, he feels quite safe in saying that none of that family will endure the Winters of any but the extreme south of the United States.

But we only give this opinion to those who want it. We have no wish to prevent experiments—nay, shall be glad if some one will do so, and we will cheerfully find a place for the result.—Ed. G. M.]

NATURAL HISTORY AND SCIENCE.

COMMUNICATIONS.

TUMBLE WEED AGAIN.

BY C. E. BESSEY, AMES, IOWA.

Mr. Wier, in June *Monthly*, describes most excellently the Tumble Weed, but I am sorry he *did not* study it before guessing at its name. It is *Amarantus albus*, thoroughly Westernized. With you, as you Mr. Editor well know, it does not roll itself up and then get itself tumbled around, so as to scatter its seed. It couldn't roll far, even if it wanted to, with you; but with us it may roll miles upon miles. Some people even

to-day say that we cannot lay our hands upon a species which has spontaneously changed its structure and habits. The Tumble Weed, however, on the prairies, is a very different looking and acting thing from what it is in the East. It is a Tumble Weed where "it pays" it to be one; but where it cannot tumble far, it does not attempt to do so at all.

This is how it probably becomes a *Tumble* Weed: The prairie climate, which is excessively dry, and again excessively wet, with a most decided preponderance of the former condition, produces a short, spreading growth, instead of the taller or more "drawn" growth of the moister regions; the stems and branches are harder for the same reason. Upon the approach of Winter the plants die, and the hard branches dry and curl up. The heavy winds now soon break off the root, and the plant is hurled and tumbled away. Send me seeds of *Amarantus albus* from the East, and I venture to say that the plants growing from them will be veritable Tumble Weeds, although they may be the offspring of the soberest and steadiest of Pigweeds. If you, Mr. Editor, want to try the converse, I'll send you Tumble Weed seeds; but you need not hope to see any lofty tumbling from the plants you grow.

EDITORIAL NOTES.

Fleshy Fruits.—Before concluding this lecture, I feel myself called upon to say a word or two respecting the importance of cultivated fruits, because gardeners and pomologists still entertain some erroneous views relating to them. Thus, for instance, it is very generally supposed that the flesh of the fruit provides the first food for the germinating plants of its seeds. Such, however, is not the case, for here, as in other cases, the first nourishment is drawn from the seed alone. The flesh of the fruit bears no relation to the embryo; it is a kind of outcast substance or excretion of the plant. In most of our cultivated fruit trees, too, the great mass of this flesh is the result of cultivation. Thus the wild Cherries of our woods possess so little flesh that they do not repay the trouble of plucking. In the mountains of Pontus I found Grapes so small that they were not worth eating; and Pallas informs us that the wild Apricot, and often likewise the wild or escaped Peach, possess no flesh at all, the former, indeed, being like a leathery two-valved capsule.—*Karl Koch.*

Fire-proof Wood.—One of the results of the Brooklyn Theatre fire is the discovery and application of what is called "Tungstate of Soda" to the scenery used on the stage. An experiment was made lately in the presence of the prominent managers of New York and Brooklyn theatres, and the result seems to indicate perfect success. A tongue of jet equal to 150 ordinary gas jets was applied to a scene for two minutes and the canvas did not blaze or smoke. A coil of rope having been saturated with the solution, was submitted to the fire test with no effect whatever.

According to a certain Dr. Beaupre (cited in the *Journal de la Societe Centrale d'Horticulture de France*), a Lilac after flowering profusely, as it does every year, this season threw up afterwards two or three suckers, which bore enormous trusses of flowers, although they only appeared between 2 and 3 inches above the surface of the ground. The editor of the *Revue Horticole* records a similar occurrence in Aralia spinosa and A. hybrida, and we have seen a similar case in Ailantus glandulosa.

Soaking Seeds in Boiling Water.—Surprise is often expressed that hard shelled seeds can be made to grow after boiling water has been poured on them, but there is no doubt of the fact. Yet one need not try it, for in practice a few days' soaking in cold water answers as well.

The Blue Glass Controversy.—All over the world General Pleasanton has raised a talk. In Europe it is perhaps louder than here. As our readers know, we are by no means satisfied that the great success of General Pleasanton is due to his blue glass. But if we were to feel sure that General Pleasanton's arguments were weak, we should have to grant that many of the arguments brought against him were weaker. We quote for example the following, from a leading English magazine:

"The effects of colored light on plants have been carefully inquired into, and those who are interested in the subject will find, on referring back, that we have reported on numerous experiments, and made public a variety of facts and opinions. All inquiries into the ways of nature, and especially as to the relations that subsist between the inorganic and organic creations, are to be treated with respect; for knowl-

edge is, for the most part, obtained in driblets, and is the reward usually of inquiring spirits that enter upon the agreeable task of interrogating nature, having definite ends in view. It is not for us, therefore, to speak slightingly of the many experiments that have been made on the effects of variously-colored light on the growth of plants. It is proper, however, to ask what is the sum-total of results? What remains to be discovered none can predict; but of what has been done the sum is amusingly small, and one general result is peculiarly interesting. The general result is that the common daylight suits plants better than any modification of it that we can obtain by chemical or optical agencies. If the philosophers could have discovered a better sort of light they would frankly have told us; but thus far, at all events, it appears that the arrangements of nature are not susceptible of improvement by the aid of art. Any one who will take the pains to collect and read the many elaborate essays on the subject that have been published, will at least earn a surprise in the reflection that will come at last on the immense pains taken by man to satisfy his mind that the Almighty has not made a mistake in adapting the imponderable forces of the universe to the necessities of the organisms with which the planet is beautified. From this general result we turn to a particular result, which we may speak of as having a "practical" value. It is quite certain that many plants thrive more thoroughly when exposed to light in which there is a distinct preponderance of green color, than in the full blaze of common daylight. The fern houses at Kew are all roofed with green glass, and in many instances it has been found that a thin coat of green paint, or of less permanent green coloring, on the roof of an ordinary plant house, affords a more salutary shade than the grey canvas or stippling of lime customarily employed. The green light thus produced does not suit all plants alike, for this particular conclusion is but a part of the general conclusion, that the arrangements of nature cannot be improved upon by art. The fact is, in the use of green glass we are in some degree—perhaps in a very feeble degree—imitating the light received by plants that commonly grow under the shade of trees. Hitherto we have seen the best results of the employment of green glass in the cultivation of Ferns and Camellias; but it cannot be doubted that very many families of plants would enjoy a tint of green similar to that produced by the passage of white light through a screen of green leaves. We have probably much to learn in adapting the circumstances of plants under cultivation to the kind of light that prevails in their native habitats."

The American gardener knows well that there are large numbers of plants that "common daylight" does not suit. The argument that "the Almighty knows what is best for us," is all very well. He knows what is best for his own good and wise purposes, but we have a suspicion that he leaves a good deal of what is best for us to be found out by the industrious human brain. It would have been just as good for our great-grandfathers as for us to have found out how to cross the great ocean in ten days, as we do. And they could have found out, if any of them had had the sense to study little things, as Watt and Fulton did. Any one who knows the difference between a wild Crab and a Baldwin, will doubt whether nature always knows just what is best for us.

It is just so with blue glass. We feel sure it is not all that is claimed for it. On the other hand, we are sure that there may be much more made of blue glass in our horticultural operations than has been made.—Ed. G. M.

Internal Heat of Plants.—By accounts in the English papers, we note that an observer has been experimenting with leaves and stems, to ascertain the difference, in their temperatures at different times of the day, as compared with that of the atmosphere. He found they were about two degrees lower before noon, but several higher from that till night. He seems to have confined his observations to beet leaves and sun flowers. We should like to see other plants tried, especially the ice plants. They take their name from the ice-like crystals on the leaves; but, whether it is imagination or not, we cannot say, there is always a cold feel to the leaves as well.

The American Association.—The meeting this year is to be held at Nashville, on the 29th of August. It is expected to be a very interesting one.

Double Flowers.—Almost, perhaps all the double forms of herbaceous flowers have been found wild, and taken to our gardens. Collectors frequently find them, and more could if they would look sharp. In an early number of the *American Naturalist*, Mr. Thomas Meehan recorded the finding of Saxifraga Virginiensis with double flowers on the Wissahickon, and Dr. Asa

Gray, in a recent number, reports one as having been recently found near Boston. Prof. Porter sends to the *Bulletin* a note on finding a double Rue anemone.

Varying Results of Climate.—The *New York Tribune* discontinued its exchange with the *Gardener's Monthly* last Spring, and we were glad to understand by this that it stood in no need of any further horticultural information. By an extract which we have recently seen in another paper, we are pleased to note that it is still wise enough to retain the services of Mr. Josiah Hoopes, whose intelligent notes we were always glad to read. In the extract referred to we see that Mr. Hoopes has been giving his experience with the Winter and Evergreens. The Lawson Cypress suffered more than the *Libocedrus*, though both were partially protected by evergreen boughs. It is singular that here—some twenty miles from Mr. Hoopes—the experience was just the opposite. No Lawson Cypress was injured, though numbers of Libocedrus were. In other years, however, the experience was the reverse. One singular observation was, that many Libocedrus were injured, while others, though within a few feet, were unhurt. Wind and cold have much to do with the tenderness of evergreens, but it is evident, as we understand by the extract, Mr. Hoopes suggests in his original paper, that there are some innate constitutional powers of resisting cold, that are not yet made quite clear to us.

Insect Fertilization.—It is a well-known fact that insects fertilize flowers, and, therefore, florists do all they can to keep Pelargoniums and other choice productions free from their depredations, for by assisting fertilization they cause the petals to drop sooner than they otherwise would do. Of this we had numerous examples during the late dry season, when seed-bearing was the rule with almost all the occupants of the flower garden rather than the exception. Among plants requiring artificial fertilization, Mr. Meehan includes Orchids, and certainly that queen of Orchids, Phalænopsis amabilis will remain in good condition from a month to six weeks if not fertilized artificially; but if operated upon by its own pollen, or that of another variety, the flowers fade within a day or two, and the seed-pod elongates rapidly. Therefore, except in cases in which improved varieties are wanted, and hybridization is intentionally resorted to, it is desirable that fertilization should not take place at least, where the primary object is the preservation of the flowers. As regards Pelargoniums, we know that kinds that are sterile retain their flowers longer than such as are fertile. Pink Christine, for example, seeds so freely that, if not counteracted by means of frequent hand picking, it becomes entirely exhausted, while other varieties, under exactly similar circumstances, scarcely produce a seed-pod. From my own observation, I should feel inclined to agree in all respects with Mr. Meehan's views, as I believe the question of nutrition as affecting fertilization, to which he refers, deserves more general attention than it receives.—*James Groom, Henham Hall, Wangford, in Garden.*

Literature, Travels & Personal Notes.

COMMUNICATIONS.

CYCAS REVOLUTA NOT THE SAGO PALM.

BY ROBERT J. SIDDALL, GERMANTOWN, PHILA.

Many of the catalogues mention this plant as the Sago Palm, and Louden speaking of the Cycas, says it produces the granulated powder called Sago, "from Sagu, the name of a sort of bread made from the pith of the trunk." and that the pith, after undergoing certain preparations "constitutes Sago." It would appear from this that the catalogues may be correct, but under the head of Sagus, which he calls the Sago Palm, Louden says, "from this palm is produced the Sago of the shops." And again he says, "the trunk of

Cycas contains a great quantity of fecula, which is manufactured into a kind of spurious sago." From this mixture by one author it seems that "the granulated powder called Sago" is a "spurious" article. Dr. Wood says that "the farinaceous product of the different species of Cycas, sometimes called Japan Sago does not enter into general commerce.

As the Cycas revoluta is not a true palm and does not furnish the Sago of commerce, (which is a product of Sagus Rumphii, Sagus lavis, and Sagueris Rumphii,) it is rather a misnomer to call it the Sago Palm, a name rightfully belonging to Sagus Rumphii, though Webster gives it Rhapis flabelliformis.

RHYMES AND RECOLLECTIONS OF A CACTUS MAN.

BY WM. T. HARDING, SUPT. OAK HILL CEMETERY, UPPER SANDUSKY, OHIO.

(Continued from page 221)

Near by, the venerable and hoary headed *old man* cactus, Pilocereus senilis, looked serious and sedate; the very picture of an aged cactus sire. The succulent sage, claimed all the honor and respect due to a long and well spent life. The old fellow had grown gray in the service, and seemed, as he leaned on his staff, to have long passed the allotted period of three-score years and ten. Like a weary cactus pilgrim, he was evidently nearing the end which awaited him, and the rest of his ancient race.

"There were giants in those days," among the succulent tribes. Cereus regalis—regal indeed, in portly form, stood some twelve feet above C. gibbosus; while C. hexagonus, with an altitude of thirty feet, towered above them all. The admirable *rat-tail* Cactus, C. flagelliformis, worked at intervals up the stem of a tall Pereskia, was really a superb specimen, and one of the wonders of the house.

There were several *plethoric* specimens of the Melon Thistle kinds, or Melocactuses. M. communis is perhaps the most common, having been in cultivation since 1688. However common it has been since then, it nevertheless, still remains an uncommonly queer looking plant. Cactaceous obesity, is one of the characteristics of this curious genus. M. pyramidalis, is an old vegetal pyramid, and if not so massive as Cheops, is more ancient, no doubt. M. amœnus, is a beauty, if not the *belle* of the family. M. excavatus, is so much excavated, as to look as if "Old Time" had been diligently digging at it for centuries; and ere this, has probably caved in, as all things will. M. polyacanthus, or many spined, is something like M. macrantha, with longer spines, of the *touch-me-not* order.

Their curious compeers, are Cactuses. C. depressus, is much depressed, though not in the least distressed. C. foliosus, is more leafy than umbrageous. C. reductus, C. intortus, and C. corrugatus, are singular examples of Cacti. The features of the last named, were deeply furrowed; looked old, and stricken in years. C. intortus, was as twisted and contorted as a cactus could be, and would puzzle a geometrician to describe its form.

Not to be forgotten, are the broad and burly Opuntias, or Indian figs, standing defiantly—armed to the teeth—among the little cactus kin, less pretentious, though much more beautiful. O. spinosissima, is well-named, if not well-mannered. The merciless character of the phlebotomizer is well-known; yet, is harmless enough, if let alone. A lawyer, would undoubtedly decide that it belonged to the *Lex talionis* class. And the same might be said of O. ferox. O. microdasys, and O. polyantha, both belong to the queer order of O's. Their lancets are not so long—but are short, sharp, and decisive. Perhaps, the most useful kind, is O. coccinellifera, from which the cochineal insects are gathered, and which give the red tincture used for dyeing purposes.

In South America, the writer has seen Cereus repandus, C. triangularis, Opuntia maxima, O. decumana, and O. spinosissima, used as hedge plants, to fence the Cocoa-nut plantations, Banana groves, and Pine-apple fields. They are of such a formidable and repellent nature, as to deter any living thing from attempting to get through. Neither hog, dog, or devil, would face them, he is certain.

Formed in various groups, were the more compact little curiosities of the Genus Mammillaria, Echinocactus, Echinopsis, &c., &c.; which with the more flexible and slender growing Rhipsalises, made the curious contrast still more strange. The above-named little pets, are both elegant and interesting, and may be classed as *bijou* cacti. No conchological collection, however well selected, could possibly surpass, either in beauty or value, an equal number of these minor marvels.

Connected with Mammillarias, are many

happy recollections. They always remind the writer of brighter days gone by, and on that account, will ever be kindly remembered. They are a most (if not the most) beautiful and curious genus of succulents known. Whatever has previously been said of a pleasant nature concerning others, or which may follow, in the way of admiration of the remainder, specially applies to them. If they are a diminutive race, their charms are by no means curtailed, or their beauties in the least abridged, in consequence. These pretty cactacean *Liliputs* are very attractive, and are altogether lovely. There is a long list of them, too long to give, so I will single out but a few, viz.: M. conica, M. simplex, M. lanifera, M. longimamma, M. ambigua, M. quadrata, M. caudata, M. erecta, M. grandis, M. pulcherrima, M. pyramidalis, M. coronata, M. columnaris, M. magnimamma, M. nivosa, M. tenuis, and M. stellata, "the star, of the goodly company."

Of the flat smooth-stemmed Epiphyllums, were such favorites as E. crenatum, E. spectabile, E. elegans, E. speciosum, E. Akermanii, and fulgens. The well-known *lobster's claw* cactus, E. truncatum, is one of them. Worked on to upright stocks of Pereskia aculeata, or Cereus triqueter, they form exceedingly handsome specimens. They are very profuse bloomers during the winter months. One very remarkable plant, especially, seems in ideality, to be within reach of the writer; and its very odd companion, Testudinaria Elephantipes, or elephant's foot. The last named, was an enormous sized specimen, and looked much like a huge tortoise, or turtle, squatting on the top of a tub. Although not considered a succulent proper, as it belongs to the Dioscorea, or Yam family, it was, nevertheless, appropriate enough for the company it kept. The abnormal appearance of the yamy monstrosity was weird in the extreme. Its age, might be dated from a "time whereof the memory of man runneth not to the contrary."

Less peculiar, though much more beautiful, were the Crassulas, Rocheas, and Kalosanthuses, which are first-rate flowering plants, and were real greenhouse glories of the olden time.

Echeveria gibbiflora, E. coccinea, E. lurida, and E. cœspitosa, were the only ones I remember there. The more modern kinds, such as E. agavoides, E. glauca, E. farinosa, E. metallica, E. lucida, E. pulverulenta, &c., were then unknown. They need no praising, as all plant lovers know how beautiful they are. Their effect is very striking as now used in the decoration of the flower garden; and especially is their beauty enhanced, when judiciously combined with Aloes, and Sempervivums, of which some excellent kinds are offered.

Sempervivum, to live forever, as its name implies. What a train of reflections seems to start up, at the mention of the name. Under the unassuming name of *house-leek*, S. tectorum is well-known. It is often seen flourishing on the cottage-roofs of the industrious, though poor people, of Great Britain. The simple-minded, yet, good housewife, regards it as a plant of considerable importance; and well she may, when she knows it is *so lucky*, to have one. A few old stagers I will mention, for instance, S. tabulæforme, or table formed, is very much like a round table and would be, I should think, just such a one as any little fairy would select, to furnish a ferny bower. S. arachnoideum, is a little gray colored *curio*, and will bear a close inspection, as it appears to be covered with cobwebs. S. tortuosum, is of the grotesque order; while S. arboreum, and its variegated mate, are of the shrubby, or tree type. S. barbatum, if not quite as hairy as Esau, is stout and "bearded like the pard." These very pretty, tidy, rosette-like plants, were as much admired then as now.

There is a legion of such varied singularities as Anacampseros, Cotyledon, Anhalonium, Anigosanthus, Phyllocactus, Apicra, Lepismium, Malacocarpus, Xananthos, Stapelia, Pelecephora, Pedilanthus, Leuchtenbergia, Haworthias, Gasterias, &c., to which I can but briefly allude. There is also a long list of names in the Euphorbia family, many of which are very beautiful, and decidedly rank among the chieftains of the succulent house. Some of them are of most eccentric growth, and are altogether as multiform and abnormal, as any others previously mentioned. With the inspissated juice of E. heptagona, the Æthiopians are said to poison their arrows. While E. balsamifera is as wholesome and palatable as new milk. E. squamosa, E. cereiformis, and E. trigona, are of the heavy calibre, or ponderous types of the genus. E. antiquorum, had a very antiquated look. Its appearance was sober and solid; one of the oddities of a very odd order, and seemed as if it might be one of the survivors of Noachian times. It produces the drug known as Euphorbia. E. Caput-Medusæ, or Medusæ's head, was a droll-looking character; having far more heads than Janus had faces. It was well it had no poll-tax to pay. It confronted the visitor at the door, and never

failed "to astonish the Browns." It was a very conspicuous figure among its fellows, with a sombre, if not sinister, cast of countenance. And yet, it was not such a frightful Gorgon, as to petrify people who looked at it; as a myth of that name is reported to have done. Their flowers are remarkably vivid, and are highly prized for their splendor, and general usefulness. E. Poinsettia, E. fulgens, E. splendens, and E. jacquiniæflora, are universally known and admired. Reluctantly I leave them, to discuss the virtues of bitter Aloes.

In contradistinction to Agaves, or American Aloes, so-called, are the African Aloes, proper. From A. soccotrina, is produced the nauseous drug, of nasty notoriety. The thick juicy green leaves are equally as unpalatable, as are the abominable dry pellets, ycleped pills. A. dichotoma, A. Commelyni, A. echinata, A. aristata, A. frutescens, and A. lineata, belong to the singular section. A. serrulata, A. albispina, A. arborescens, A. elatior, A. distans, and A. purpurascens, are of the stout and sturdy style; and averaged from six to fifteen feet high. The slender, graceful, variegated, obscure, big-toothed, noble, reflexed, and proliferous, had each a representative. They, are embraced in what may be designated a "*motley crowde.*"

(To be concluded.)

BURDETT'S ISLAND AND ORCHARD IN THE NIAGARA RIVER.

BY S., SYRACUSE, N. Y.

A paragraph in the *Gardener's Monthly* for June, at page 174, in reference to Mr. Burdett's orchard, on the Niagara River, near Niagara Falls, though of no great intrinsic importance, may perhaps bear correction, and in doing so, I wish to add a few words respecting it. It is not an apple orchard, but one of peaches. The number of trees stated is probably correct. This orchard is situated on an island, near the American side of the river, and is a curiosity in its way. I saw it several times a few years since, and suppose it to be flourishing yet. Many of the trees are large, old ones, but continue healthy and productive. The even temperature produced by the open river always preserves the fruit buds from the Winter's cold, and Mr. Burdett obtains a fine crop of peaches every year. His conveniences for marketing the crop are peculiar. As the fruit ripens it is not gathered until perfectly mature, and in the best possible state to be enjoyed in eating. The ripe peaches are taken from the trees only as they become fully so; are placed in baskets and loaded into a barge which lies by a dock close by the orchard, the work being done during the day. In the evening a steam tug arrives from Buffalo, and the barge is towed to that city which it reaches at four o'clock in the morning. The fruit is then distributed through the city, and only those who know what a luscious thing a ripe peach is, right from the tree, can form an opinion of the character of the fruit thus delivered. The estimate put upon Mr. Burdett's crop, of $6,000, has doubtless been realized, although not always amounting to so large a sum. Mr. Burdett's facilities for peach growing and for marketing can hardly be exceeded, although a narrow strip of land along the river is well adapted to apples, pears, quinces and peaches as well as the smaller fruits. Burdett's Island furnishes a very choice and favorable location for the business its proprietor is in; but his example might be imitated in a few similar situations in that vicinity, though I believe not to the same extent.

EDITORIAL NOTES.

The Plural of Botanical Names.—It is difficult to understand what rule our English cotemporaries have in their plural orthographies. Speaking in the plural of Brodiaea, it has no hesitation in saying "Brodiaeas." Yet in the same paper it does not say Calochortuses, but "Calochorti." *For our part*, we think, and have before expressed the opinion, that when we adopt a word as an *English* word, and in the construction of an English sentence, the words should follow English rules. We can see no more reason why we should hesitate to say Calochortuses than Verbenas, Fuchsias or Dahlias. Botany already seems to the masses as loaded with unnecessary terms, and we see no use in bringing in what must appear a mere affectation of correctness, when there is not only no occasion for it, but when those who affect it continually violate their own ideal.

Lemmonia Californica.—This new genus established recently by Dr. Gray, "to commemorate the services of a most ardent and successful explorer of the Sierra Nevadas," and to which we recently referred, as we see by the last issue

of the Proceedings of the American *Academy of Arts and Sciences*, is a Hydrophyllaceous plant of which the well-known Phacelia is an example. The new genus will be precious to botanists from its association, but so far as we can gather from Professor Gray's description, it will have few charms for the lovers of gay flowers.

Grasshopper Machines.—As we have recently stated, the amusement which our suggestion of some years since, that machines could be easily invented to work successfully against grasshoppers, afforded some of our Western friends, leads us particularly to note how progress in that line is advancing. We give this from the *Boulder* (Colorado) *News*:—Benj. Long has contrived the simplest, least expensive and best grasshopper machine we have yet seen. It is a V shaped pan about six feet apart at the points, the pan being two inches deep, with little partitions a foot apart. In the centre where the pans come together is the axle, upon which the machine is supported by two wheels, say two feet in diameter. To keep the pan from fouling, a little elevator skims from the surface of the oil and water the dead 'hoppers and deposits them on the ground behind. The machine is pushed from behind, is nicely balanced and easily run over rocks and rough ground. At the back of the pans, extending upward, is a wire screen about eighteen inches high, to prevent the 'hoppers from hopping over. This is all there is of it, any boy can run it and its cost will not exceed $20. Mr. Long has applied for a patent for the machine, and will furnish them in any quantity at $20 each. Persons interested can see at this office, a full half-bushel of 'hoppers caught in four hours' work, on about a half-acre of ground, at Mr. L's. place, north of town. The lot weighed 35 pounds, or about 70 pounds to the bushel. If the celebrated grasshopper commission would spend a little of their funds as bounty money, many ingenious minds would be at work, devising means for the extermination of the pests.

The Satin Flower.—Referring to the pretty Californian bulb, Brodiaea coccinea, *The Garden* uses "Satin Flower" for its common name.

The Cactus in Upholstery.— The writer has a distinctly unpleasant recollection of Cactuses as "pillows" in past times, when unsought, they were found beneath his head. But by the following from a California paper, it would seem as if they were now to find a legitimate use, if indeed Yuccas are not intended:—"An excellent article of upholstery padding has been manufactured by Mr. J. W. Findley from the bayonet cactus. It is designed to take the place of curled hair, and is far superior to the Eureka and other fillings. The process of manufacture is very simple and easy. Mr. Findley has applied for a patent on his discovery, and with his partner, Mr. C. F. Holman, will soon commence to make up the material for market. Upholsterers of our city who have examined Mr. Findley's specimen pronounce it a first-class article, and have offered from 10 to 15 cents per pound for it in quantities."

A New Forage Plant — *Cynoglossum Morrisoni*.—A formidable antagonist has been found for "Prickly Comfrey," in the common Beggar Ticks. Says Mr. S.W. Brooks, of Brooks county, South Carolina:—"The yield of this plant is very great. It may be cut three times in a season, growing up repeatedly from the old stumps, and yields many hundreds of pounds to the acre at each cutting." The samples which Mr. Brooks carried to Gainesville were of the second cutting of this year, and he will certainly get one, and, perhaps, two more cuttings. It is not a perennial, but the seed must be planted each year. It produces well on poor lands, but, of course, does better on rich soils. Horses, mules and cattle will eat it up clean, stalks and all, and thrive on it. It is botanically allied to the Symphytum, and we do not see why it should not do just as well. The only objection we see likely to be made by those who have money to spend is that it is not a "furriner."

Bothered by the English Name.—The *Gardener's Chronicle* gives it up. It says:—"A correspondent asks us to tell him of any means of destroying the Wild Lily on a gravel path. We know, or think we do, a Lily when we see one, and are not altogether ignorant of the nature of a gravel path, but a wild Lily on a gravel path is indeed a puzzle to us. We may say at once that a wild Lily, truly so called, on a gravel path, is a myth of the Mrs. 'Arris description; but, still, what is meant by the word Lily? This is only another illustration of the worthlessness of popular names. Speak to a botanist of a Lilium or a Lily in its proper signification, and he knows what you mean, but in popular parlance there are African Lilies, Atamasco Lilies, Barbadoes Lilies, Belladonna Lilies, Blackberry Lilies, Bris-

bane Lilies; other "Lilies," called Cape Coast, Corfu, Cuban, Day, Fire, Flax, Lycoris, Guernsey, Ixia, Jacobean, Knight's Star, Lent, Mexican, Persian, Pond, Prairie, Rock, Rookwood, St. Bruno's Scarborough, Superb, Swamp, Trumpet, Whitsun, to say nothing of Water Lilies, Lilies of the Valley, and Lily of the Valley Tree, and perhaps more. Now not one of these has any claim whatever to be called a Lily; moreover, we do not think any one of them is likely to be wild on a gravel path."

[It so happens that we can help our friend though three thousand miles away from the home of the inquiry. The "Lily" in the gravel path is the Convolvulus arvensis, or field Bindweed. We know of a "Hampshire Boy" who never heard this plant by any other name,—and of people who were badly bothered with them in gravel walks, and they are getting troublesome here too. Acids will destroy them.—Ed. G. M.]

A Prosperous Illinois Nursery.—Spalding & Co., of Springfield, commenced the business there in 1858 on 24 acres, which location was given up in 1861 for railroad purposes, when they rented three other tracts amounting to 62 acres, on which they carried on their business until 1866, when they purchased their present site of 80 acres near Riverton, six miles east of Springfield. The soil was from timber land, a strong, clayey loam, subsoil reddish clay. They at once commenced underdraining with tile, and now the whole is thoroughly underdrained every 30 feet with two, three, and four inch tile, laid 3 to 4½ feet deep. In 1874 they added ninety acres of land adjoining, and have nearly all well filled with stock.

History of the Golden Pippin Apple.—says an English writer:—The Golden Pippin, although of the greatest antiquity, has very little early history. It is not the golden Pippin of John Parkinson, because he speaks of it as a large variety. Evelyn, in his Pomona, states that Lord Clarendon had in his time at his estate in Berkshire an orchard of a thousand Golden and other cider Pippins, but no allusion is made to it as a dessert Apple.

Origin of Some Old Apple Names.—The Rev. C. H. Bulwer, an English clergyman, says: "The etymology of the Joannetting or Juneating Apple is so singular and decides the names of so many other Apples and Pears, that I shall not apologize for selecting it. It is one of the oldest and earliest bearing Apples, hence the mistake about its name being Juneating, in allusion to its maturity at the end of June or July. Dr. Hogg traces its name to Joannetting, because its Apples ripened about St. John's day; and for a similar reason, the next apple I mention, the Margaret Apple, derives its name from St. Margaret's day, the 20th of July, when this Apple would be in season. The Costard is one of the oldest of our English Apples. This variety is actually mentioned by name in a fruiterer's bill in Edward I.'s reign in 1292, as previously alluded to; and although now almost extinct, still used to be so common that retailers of it (even the very price mentioned at 1*s.* per 100) were called costard mongers, a name in popular use now in the word costermonger. Some etymologists, including the great Dr. Johnson, consider the name Costard to be derived from *cost*, a head, but how it is hard to say, or rather to see. Dr. Hogg traces the name to costatus, *anglice* costate or ribbed, on account of the prominent ribs on its sides. The Quoining or Queening Apple is an old Apple, of which we have many varieties in Herefordshire (notably the Cowarne Quoining, a most valuable Apple) which were excellently and numerously shown at our pomological exhibition. The name Quoining may be traced by the angularity of the shape of the Apple, similarly as in the Costard, from the word quoin or coin, the corner-stone of a building. The Catshead is another very old Apple still grown amongst us, but chiefly I have noticed in cottagers' gardens, where it is gradually giving way to the Hawthornden and Lord Suffield especially in Hertfordshire. Phillips sings its praises thus—"The Catshead's weighty orb, enormous in its growth." The Old or Winter Pearmain must by no means be omitted. It is the very oldest historic variety we have. In Bloomfield's history of Norfolk, as quoted by Hogg, there is curious mention made of a tenure in that county by petty sergeantry and the payment of two hundred Pearmains and four hogsheads of cider of Permains into the Exchequer at the Feast of St. Michael. The origin of the name is equally curious. In early historical works of the same period Charlemange is written Charlemaine, the last syllable as Pearmaine; and as Charlemange was derived from Carolus magnus, so Permaine is derived from Pyrus magnus, the Great Pear Apple, in allusion to its pyriform shape.

The Tree of the Blessed Virgin near Cairo.—There is an old Sycamore tree at the

village of Metarich, a few miles distant from Cairo, and in the immediate neighborhood of the ancient Heliopolis, whose site is now occupied by a few scattered ruins and a picturesque monolith of over 50 yards high. Near this monolith is the present village of Metarich, an old heap of houses in a state of ruin, presenting a most wretched appearance, but surrounded, however, by large and well-cultivated gardens, in the center of which rises, with an imposing appearance, the large tree of the Blessed Virgin (Segar el Marium), under whose shade tradition has it that the Holy Family reposed at the time of their flight into Egypt. This Sycamore is very large; seven men with extended arms could hardly encircle it. Its age is unknown, but by the concentric circle which a section of one of its largest branches, which has been detached from the trunk for some years past, presents, we may conclude that it has withstood the storms of several centuries. The present Viceroy of Egypt, at the time of the inauguration of the Suez Canal, presented this Sycamore to France, in accordance with the desire expressed by the Empress Eugenie, who went to see it. She had it surrounded with an elegant railing, and appointed two guardians to protect it and take care of the Lilies and Geraniums which she caused to be planted around it; these guardians are still paid by France. This tree is held in great veneration not only by the Christians, but even by the Arabs. Natives and foreigners gather its leaves, to which they attribute therapeutic virtues.

[This is a kind of fig—the Ficus Sycamorus, which is the Sycamore of the Scriptures. The English Sycamore (Acer pseudo platanus) or Sycamore Maple, no doubt derives its name from a somewhat similar leaf, and the American Sycamore (Platanus Occidentalis) from the resemblance of the leaf to the Sycamore Maple.—Ed. G. M.]

Dartmouth College has conferred the degree of Ph. D. on Marshall P. Wilder of Boston and John R. Eastman of Washington; the degree of D. D. on President Buckham of Vermont University, and LL. D. on Edward F. Noyes, U. S. Minister to France.

Robert B. Parsons.—In acknowledging the receipt of three new varieties of Magnolias in the July number, page 198, an error made us say "R. B. Parsons & Son." There is no such firm. We owe the attention to the personal kindness of the above-named gentleman, who is the head of the well-known firm of R. B. Parsons & Co.

Obituary.—R. Robinson Scott, formerly of Philadelphia, died at Harrisburg, Pa., on the 24th day of June, in his 51st year.

American Pomological Society.—We would again strongly urge the State Societies to send full and representative delegations to hospitable Baltimore, at its Sixteenth session, commencing Wednesday, September 12, 1877, at 10 o'clock A. M., and continuing three days. See previous announcement, May number, page 159.

All Horticultural, Pomological, Agricultural and other kindred Associations in the United States and British Provinces, are invited to send delegations as large as they may deem expedient; and all persons interested in the cultivation of fruits are invited to be present, and take seats in the Convention.

The coming Session is expected to be unusually interesting from its location in the great fruit-growing region of the Atlantic coast, and from the experiences of the century embodied in the reports of the State and local Horticultural Societies.

Arrangements will be made with hotels, and, as far as possible with the various railroad lines terminating in Baltimore for a reduction of fare. Rates made by Baltimore roads will apply only to their lines. It is hoped that arrangements have been, or will be made by the various delegations with the roads in their own localities.

At the same time, from September 11th to 14th inclusive, the Maryland Horticultural Society will hold a grand exhibition of fruits, plants, flowers and other products of Horticulture, by which an increased interest will be given to the occasion.

Packages of fruits with names of contributors, may be addressed as follows:—"American Pomological Society, care of Wm. B. Sands, Baltimore, Md."

Massachusetts already announces, in numbers and statistics, a strong delegation, which, headed by the honored President of the National Society, will make her a host. Will not the other States do as well, or possibly better?

Dick's Garden Hand-books.—*The Vegetable Garden*, by James Hogg. New York, Dick & Fitzgerald. This is a little book, but is rare to find one so well condensed. It is an epitome of vegetable garden work for the whole season and for every kind of crop. Mr. Hogg writes from ex-

perience, and no one has experience of a better quality. We have also from the same publishers a hand-book of *Recitations and Readings.*

First Annual Report of the Ohio Fish Commissioners, from J. H. Klippart, Secretary, is received.

SCRAPS AND QUERIES.

Damages for Delay.—A. L. asks:—"When a nurseryman ships plants by railroad or steamboat and they are delayed an unreasonable time, so as to spoil on the way, can the railroad or steamboat come back on the shipper for freight; or are they as common carriers liable for damage to the plants of the shipper?"

[Properly speaking, the goods belong to the consignee, as soon as they are placed in the hands of the company. But in perishable articles the consignee often says, "he did not order goods," or questions the reasonableness of what he regards as "delay," or neglects to come for them till they are spoiled, and the railroad people cannot realize their expenses by the sale of spoiled goods. They often pay connecting roads large sums of money as "back charges," all of which they lose under these refusals. Under these circumstances the leading roads refuse to take perishable freight unless the rates are paid in advance by the shipper, or the shipper guarantees that the freight shall be paid. It is often a great annoyance to the shipper to have to come under these rules, but we can see that while people are made as they are, the railroad people will naturally try to protect themselves. The shipper must protect himself by being sure that the person he sends to is a reasonable person, before he undertakes to guarantee for him.

But there will be times when there really is "unreasonable" delay by the railroad people. Most railroad people that we have had dealings with, promptly settle when this is made clear, but there are some like some people who act on the principle that when there is a loss let some one else bear it. There is no remedy then but a lawsuit, and this as a general thing, besides being expensive, is little more than a game of "toss penny." The wisest thing in these matters is so to pack that things will not suffer by a little delay. If a shipment will probably take a week, pack so that even a month on the road will not hurt them. The customer is generally expected to pay for packing, and as this is usually expressed and understood, he has the right to look for a good job. If men in business understand their business properly, and charge enough for good packing, and the customer willingly pays it, these railroad disputes would seldom occur.—Ed. G. M.]

Amateur Marketing.—"A Cabbage," Baltimore, Md., writes:—"I engaged in this place as gardener, and it suited very well for a year, but the master wishes me to sell the surplus fruits, flowers and vegetables to help pay the garden expenses. I do not think it is right for a gentleman to engage in this business, and wish you would say so in the *Gardener's Monthly.* Doesn't it hurt the trade?"

[This is a question which the *Gardener's Monthly* cannot decide. Every gentleman must decide this for himself. Amateur gardeners, of course, follow gardening for pleasure, and when you engaged with him it was to administer to this gardening pleasure, and it may not be quite fair to you to be called on to undertake commercial affairs without your entire consent. So far we think you are right. Perhaps also the "trade" may not feel kindly toward one who sells as he does. He sells for fifty cents what cost him a dollar to raise, simply because "he has to keep a gardener anyhow," and he "may as well get some of it back again," and yet when the "trade" offers its dollar's worth, he is told it can be "had for half that," and he has to sell at a loss. But having admitted all this, we still cannot see why a gentleman has not a perfect right to do it. Suppose he finds it costly to keep a carriage and pair of horses, why not hire it out to carry passengers to and from the depot at odd times? He could afford to do it for half the price of the regular "cabby," as profit is not in question, so much as the "bringing of a little in." Or if he choose to hire out his piano for public concerts at half the price of the music stores; his pictures at a small percentage, to help a show; or even get his cook to bake a few pies and cakes at odd times, and dispose of them to the confectionery stores for what they will bring, in order to help pay the servants' wages. We know of no reason at all beyond what every one can decide for himself why he has not a right to do so. It is a matter of taste.—Ed. G. M.]

Grapes Under Glass.—G. E. S., Boston, Mass. Chorlton's Grape-growers Guide will suit you.

THE

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AND
HORTICULTURIST.

DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

Edited by THOMAS MEEHAN.

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FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

The arrangement of colored leaved plants into masses, so as to look like carpets and ribbands, is still popular, and is likely to keep its hold on us for several years yet, especially as we have not near reached the perfection the art has been raised to in Europe. It is best to get the designs colored out now, so that we can tell exactly what plants to prepare for the work another season. We have a larger number of plants to work with than Europeans have, and some unique designs could be worked out. The commonest plants, even weeds can often be used to great effect, not only for this but for other work.

At this season of the year, people think of making cuttings of bedding and other plants, in order for another year. The best way to propagate all the common kinds of bedding plants is to take a frame or hand-glass and set it on a bed of very sandy soil made in a shady place in the open air. The sand should be fine and sharp, and there is, perhaps, nothing better than river sand for this purpose. The glass may be white-washed on the inside, so as to afford additional security against injury from the sun's rays. Into this bed of sand, cuttings of half ripened wood of the desirable plants may be set, and after putting in, slightly watered. Even very rare plants often do better this way than when under treatment in a regular propagating house. In making cuttings, it is best to cut the shoots just under a bud—they root better, and are not so likely to rot off and decay. A cutting of about three eyes is long enough for most strong growing things, such as Geraniums, Fuchsias, &c.

In many parts of the Northern States the leaves will have changed color previous to the incoming of Winter, and the planting of trees and shrubs will commence as soon as the first Fall showers shall have cooled the atmosphere and moistened the soil. Further south, where the season will still remain "Summer" a while longer, the soil may, at any rate, be prepared, that all may be in readiness when the right season does come. What leaves remain on should be stripped off, and the main shoots shortened. They will then do better than if planted very late. In fact, if planting cannot be finished before the beginning of November in the Northern and Middle States, it is better, as a rule, deferred till Spring. In those States where little frost occurs, this rule will not apply. The roots of plants grow all Winter, and a plant set out in the Fall has the advantage over spring set trees; that its roots in Spring are in a position to supply the tree at once with food. This is, indeed, the theory fall planters rely on; but in practice it is found that severe cold dries up the wood, and the frost draws out the roots, and thus more than counterbalances any advantage from the pushing of new roots. Very small plants are, therefore, best left till Spring for their final planting. It is, however, an excellent plan to get young things on hand in Fall, and bury them

entirely with earth, until wanted in Spring. Such things make a stronger growth the next season, than if just dug before transplanting.

As soon as Dutch bulbs can be obtained, they should be at once planted. Of all fertilizers, well-rotted cow-manure has been found best for them, and especially if mixed with a portion of fine sand. They should be set about four inches beneath the surface of the ground, and a little sand put about the root when being planted. A very wet soil usually rots the roots, and a dry one detracts from the size of the blooms. A soil in which the generality of garden vegetables do well, is one of the best for these plants.

Those who have no greenhouse, and yet are desirous of preserving many half-hardy plants through the Winter, employ *cold pits*. Choose the dryest situation in the garden, and sink about five feet in depth. It is important that no water can be retained at the bottom. The pit may be of any length required, and about five feet wide, so as to accommodate six feet sash. The inside of the pit may be built up of boards, or, if something more durable and substantial is required, brick or stone. The body of the frame may be built up a few feet above the level of the surrounding soil, and the earth which comes from the pit be employed in banking up to the upper level of the frame. Shelving should be made for the inside so as to extend from the base of the front to nearly the top of the back, on which to place the plants in pots. In the space which will then be under the staging, hard wooded and deciduous plants, as lemon verbena, fuchsias, etc., may be safely stored, while the more succulent kinds are shelved overhead. The plants to be preserved in such a pit should be potted early, and be well established and healthly before being pitted; much of success depends on this. The less water they can be made to live on without withering through the Winter the better they will keep. Straw mats must be employed to cover the glass when freezing time commences, and when the thermometer is likely to fall below 20°, straw or litter should be thrown over. Board shutters are also excellent, as it keeps the snow out from the straw and litter, which sometimes makes the mats very awkward to uncover when we would like to give air. Very little light or air will be required through the Winter, when the plants are not growing. If a good fall of snow cover the pit, it may lie on undisturbed for two weeks or more without injury. When a warm, dry day offers, the sashes may be raised if convenient, to dry up the damp. Many kinds of border plants can be kept over Winter this way with little trouble.

COMMUNICATIONS.

DIPLACUS GLUTINOSUS.

BY WILLIAM FALCONER.

This is a remarkably pretty shrubby Mimulus, a native of California, not hardy here, but an excellent subject for greenhouse decoration in Spring, and the flower garden in Summer. Its blooms are comparatively large, orange buff, axillary, and profusely borne on the short-jointed stems and branches. It roots readily from cuttings, and the smallest plants bloom. Out of doors it is said to prefer a moist or swampy soil, but judging from our own plants—some growing by a water Spring and others in common garden soil and location—I cannot perceive a preference, for in both cases the plants are thrifty and heavily bloomed.

LILIUM HUMBOLTII.

BY W. C. L. DREW, EL DORADO, CALIFORNIA.

Lilium Humboltii is a native of California, it is found along the foothills of the Sierra Nevada Mountains and in the northern part of the State.

This plant was first discovered by Roezl, who named it after Baron Humbolt, Humboltii; a short time afterwards it was again discovered by another eminent botanist, Dr. Kellogg, who named it Bloomeranium, after Bloomer, a noted California botanist. Which name is the proper one, it would be hard to say, it is offered in the market under both names, some dealers not thinking two names were enough, have gave it several others, such as Californicum, and I see by the January *Gardener's Monthly* it is sold in Europe under the name Humboltianum, not much different from Humboltii, but enough to cause confusion, and disappoint many who buy under one name and then under the other.

The flowers are of a golden yellow color, spotted; the spots on first opening of the flower are of a purple shade, but change to brown in a few days.

The flowers are about six to eight inches in diameter; the petals turning backwards almost touch the flower stem, forming the flower into a

ball which gives it the appearance of being a golden ball.

CULTURE.

In its native places it grows in rather dry, light soil; the bulbs which are very large, often weighing three quarters of a pound, are always found deep in the ground; never less than nine inches, and oftener a foot or more.

In planting them, select a high, dry place, in the full sunshine. The soil should be light and rich, but no fresh manure must be allowed.

Get good healthy bulbs, plant them not less than nine inches, and give them no water except what they get naturally, and you must succeed.

I had one last Summer that bore fifty flowers, thirty of which were open at once.

THE WEEPING CHERRY.

BY GEO. ACHELIS, WEST CHESTER, PA.

It is really surprising how little this really beautiful little tree is known, even among many nurserymen and tree dealers. It deserves to be introduced everywhere, as it is perfectly hardy and highly ornamental, besides being suitable in such yards and lawns where large trees would be unbecoming. For cemeteries and small yards in towns and cities it can hardly be excelled. Its growth is compact, the leaves are small and glossy, giving it a refined appearance, and in the Spring it is literally covered with flowers. It also bears a light crop of red sour cherries. (The cut below represents the tree in bloom.)



[We quite agree with Mr. Achelis that few trees deserve more attention. It is far superior to many small weepers that are in more common use.—Ed. G. M.]

THE NORWAY SPRUCE.

BY GEN. W. H. NOBLE, BRIDGEPORT, CONN.

A while since, I earnestly plead in this *Journal* the cheap deserts of our native trees and shrubs, for rural decoration. With taste and home-bred liking, I claimed, even neglected New England Cedars, and outcast Jersey Pines, as possible "ministers of grace," in the hands of a deft and thrifty taste. But for this rank and *cheap* heresy against the canons of the orthodox and *costly* gardenesque, your very able President, J. J. S.,

doomed me to their drear and hushed companionship. The decree welcomed me to "ways of pleasantness, and paths of peace." Besides the sandy sameness and outcast fellowship of those pitch pines, in our late "unpleasantness," I had tramped "on many weary marches," all the way down to flowery Florida. Ere long, "in the spirit" or in the flesh, I hope, with that same Horticultural judge and Daimio, to skirt along those dreamy pine wood glades till, "away down in Dixie," we look on sunny pictures framed therewith, and draped with the silvery sheen of moss. Oh! the glory of those pitch-pine woods, their stretching glades, their palm-tuft hammocks, with orange groves atween.

Awaiting, in pen or person, a glimpse of those quiet "scenes to memory dear," I offer rescue from a worse doom than mine, to one of those foreign evergreens, around which hang the glamour and loveliness of *cost*. Banishment awaits the Norway Spruce, unless a way is shown to mend its failings. In its youth, and some what into the cone-bearing age, it wears thrift and comeliness and shelter, in its quick, dense growth, but no sooner has it towered up to the stature, and graceful sweep and droop of limb, so coveted by Downing, than our tearing wintry wind takes it in hand. Year by year, a seared and shrunken foliage gives it the shrivel of "the lean and slippered pantaloon." It loses that well-filled-out and robust look, without which, the evergreens, unlike deciduous trees, hang gaunt and skeleton. This painful aspect of premature old age more than rivals even the bereft and waning form of a venerable New England Cedar. The Cedar, stark and partly stripped of foliage, never forgets its attitude of the picturesque, but an old worn Spruce has a distressed look in its scant and shrunken toggery. The feeling bids us almost say "why cumbereth it the ground?"

Again, the young Norway Spruce has a thick growth and bulky spread, whose untutored form soon crowds and cramps a small homestead. The very vigor of the tree stretches too much over the sward. It clutters the space due to other plants. The little, comely cone-shapes, which the nursery sends us, in such varied style, quickly outstrip the purpose of their planting, and task us to limit both their tower and spread. Most people solve the puzzle somewhat as did those who shortened the dog's tail, close behind his ears. Some waste the growth of years and cut clean out the cluttering torment, whether young or old. Others lop off the lower limbs, till the tree puts on, instead of grace, the ungainliness of a giant toadstool, or an upset top. I confess rooting clean out suits me better than such shaping of a Norway Spruce, or any other evergreen, into a clownish, spooky scarecrow.

Now, there is no need of putting this ungainliness on nature's forms. Instead of such brainless, tasteless makeshifts, there is a cheap and easy way to fashion the Norway Spruce, at almost any stage of its natural growth, into graceful fitness for our need. It comes out of that reaction and severed vitality of the tree, following sharp and strong, the bold surgery of knife and saw upon its limbs. The work needs sense and the skill begot of brains or trial, but it suits the Spruce at every age. It will not rebel at any lopping which does not come pretty close to what most people would like to see the Spitz tails get. Until the tree has lost its robust form, you may fashion it at will. Sheared into a cone, either stout or slim, it will bristle with verdure. Cut out on a young tree, alternate whole or parts of limbs, and a heavy burst of foliage will load the rest into the graceful droop of vigorous maturity. When one full-grown has shifted its dense inner drapery and sheltering verdure to its outer tassel tips, the same reactive surgery will robe on its gaunt unseemliness the stout garment which its youth wears against the searching gird of the wintry wind.

Now, I cannot better set out the way to do such work, than my usual one of an example. Some years since, in my ground, a Norway Spruce towered up to forty feet or more of graceful vigor; the earth, dry deep down, after a long drouth, had frozen away down beneath the surface; then came along that tearing, scathing, freezing wind, which many evergreens will never forget. The dry breath of the wintry blast seared and tore out with its frosty fingers, worse than the scorch of Summer's sun or drouth. Everywhere death and blight reached our evergreens; big gashes of verdure were gouged out of kindly protecting hedges; here some single gladdener of the lawn, there, out of a group, some stout, full-clad favorite felt the death shiver of this blast to its very marrow.

That same thirsty, tearing wind struck my big Norway Spruce. It did not show many marks of the shock till Spring, then its full drape and droop of frond and foliage took on a shrunken feebleness. From a most robust and stalwart specimen, the icy breeze had withered

it to a shriveled, lank-limbed uncomeliness. I endured the torment of its stricken form, and struggled for recovery for a year. The next Spring made trial of my surgery. I stood below and engineered the work, so that I might save the just proportions of the tree. Now mark, the exact method, graded as to size somewhat, will suit trees of any stature.

First, about eight feet of the spire was lopped down to some dormant buds and little tassels, just above a tier of smallish limbs. Then those limbs were cut back to the last stout top tassel, or little side shoots next the trunk. Then on the next plateau beneath, each branch was shortened to the first tassel and side limbs, outside the ends of those above. Thus adown the tree to the circuit of branches that swept the ground, leaving each curved whorl of limbs a little longer than the last above, the same regimen was kept up. If, by chance, some limb could be taken, with benefit to those around, it was cut clean out. The aim was to give the renewed tree, as near as could be, the likeness and proportions of its best estate.

The hoped for result was reached. The very season after this method was tried, my Spruce healed well over and hid the stumps where cut. The little tassels swelled out and stretched over the scars in vigorous stoutness and graceful droop. The end tassels and side limbs, and those further in, all took up the same strong growth, and a little outward and more downward weeping. Little spires shot up from the trunk top, thence onward, all over the tree, graceful droop of verdure, robust vigor and dense foliage have prevailed. The color holds rich, bright and lasting. Hardly one single limb was lost. When such was cut out, the new growth hung down and spread out to fill the space.

Thirty or more feet beyond mine, a neighbor's younger Spruce, sheltered by his house escaped the scathe of mine. Since, no such frosty wind and dried up soil have joined hands to ruin them, yet they have not gained in comeliness with the years since passed. Gradually they are taking on a form bereft of that inside trunk and limb-sheltering verdure which my big tree has gained and keeps. It has no rival hereabouts in health and vigor, and in rich, dark verdure held throughout the year. Everywhere around us I see this Spruce, after a few years, abandoning the style and bearing of its earlier life, or taking on that same sparse foliage, lank, uncomfortable look. It's evident to me there is no way given to restore and keep this tree in its best estate and form but just that method which has brought mine so marked success.

It seems to me very fortunate that this Spruce is so endowed with reactive force. Few places in this country are large enough, or if they start so, few will long hold breadth enough to endure the improving stature and spread of our biggest evergreens. A little place soon looks swallowed up and smothered, by stalwart Pines and Spruces. Great specimens of such are well enough for public parks, but there are few broad acre private grounds to which a generation gone does not bring "subtraction or division," along with the "silence" of their owners graves. Yet, kept gracefully within bounds, and close-draped with thick foliage, under my regimen, the Norway Spruce will snugly shelter all by its screen, and yield its comely cheer and presence in Summer's sun and wintry gloom.

AN EVERGREEN PLANTATION.

BY W. T. BELL, FRANKLIN, PA.

I have a narrow, good-for-nothing strip of ground, about ten rods from my house, its nearest boundary being a small, winding stream, while the other side reaches to a dividing fence. It is so rocky that it is almost useless for tillage, and I concluded that the best use I could make of it was to plant it with evergreens. It was thinly covered with small chestnuts, oaks, maples, etc., and any that were likely to injure the future occupants of the ground, by falling on them, were cut down; the brush was gathered and burned, and without further preparation my site was ready for planting. I had a quantity of shrubs and trees on hand, consequently there was little selection of kinds to be made.

The front of the strip, next the stream and the house, was set with American Arborvitæ, varied occasionally with Hemlock Spruce (which, by the way, is one of the finest, hardy evergreens grown, when properly treated), and American Rose Bay (Rhododendron maximum), while at suitable places, at the extreme margin, a few plants of the Dwarf Yew, or Ground Hemlock (Taxus Canadensis), were placed.

The background was filled mainly with Norway Spruce, sparingly interspersed with Beech, to be still further relieved by a few White Stemmed Birch and a specimen or two of the

Purple-leaved Beech. The Arborvitæ were set about eight feet apart and the larger-growing trees at proportionate distances, not in straight rows, like an orchard, but imitating the irregularity of nature. The planting was quickly done in this way:

Small holes were dug with a mattock, and the trees (already trimmed, and which had been several times transplanted) were taken up, with nearly all their roots and a mass of soil adhering to them, and placed in the holes; the loose surface soil was drawn about the roots and well worked in with a sharp-pointed stick. As soon as the roots were thus covered, the soil was stamped down all around, as firmly as possible, by the feet; more soil was drawn in, stamped again, the tree straightened up, the surface finally filled in and covered with a good coat of leaves and small brush. No water was used, and, although some of the trees were four or five feet high, I would not give any one four cents to warrant the whole lot to grow. My little plantation, or copse, is already quite a noticeable feature in our landscape, and will become more so every year; its never-failing green forming a point that the eye is glad to rest upon.

EDITORIAL NOTES

Omphalodes verna.—This is a charming perennial, some six inches high, with creeping shoots and azure blue Forget-me-not like flowers, and is as hardy as a Moneywort. It blooms late in April and through May, and feels at home in the flower border, the rockery, or naturalized in half-wild shady places. It can be increased very readily by dividing the plants when they have done blooming, and, if need be, these divisions may be again divided in August, if a moist, shady frame, or nook, be granted them, and all will be strong plants to stand the Winter.

The Polyanthus.—What can give us more satisfaction, in the way of flowers, than a cold frame full of these? They are old-fashioned, pretty, most floriferous, and no plants are easier managed. A good strain is everything. Large, brilliantly colored flowers, with symmetrically round corollas and distinct gold lacings, are what we want, and by care and selection can easily have. They produce and grow from seeds very readily, and by dividing the finer sorts after blooming, and discarding the poorer, we can increase and improve our stock. They like to be planted out in Summer in a somewhat moist, shady nook, and thence transposed to the frame on the approach of Winter. From April till June they are aglow.

Acalypha tricolor in the Flower Garden.—This crimson-copper leaved Euphorbia was used last year as a bedding plant in the Botanic Gardens, Washington, with striking results. Intermixed with green-leaved tropicals, it had almost as telling an effect as scarlet flowers have on Zonal Pelargoniums, and the substantiality, size and brilliant coloring of the leaves far exceeded that of the same kind of plants grown indoors. This Acalypha propagates readily from cuttings of the young wood, in a brisk heat, with, or without bottom heat.

Azalea calendulacea.—This is the chief parent of our improved hardy Azalea, and Mr. Van Buren, of Clarksville, Ga., gives the following interesting account of their behavior in their native woods to the *Country Gentleman*: "The class A. calendulacea grow here to the height of from ten to fifteen feet, and are of every conceivable shade and color, from the palest yellow up through golden to orange, and thence on to scarlet and crimson and variegated. They frequently cross with A. nudiflora, having some of the petals of a pink or rose color, and the others of some shade of orange, yellow or red. We have one growing by the side of the porch of our house, some fifteen feet high and ten feet or more in diameter, which annually has myriads of flowers. It is now in all its glory. I send you one of the flowers; one petal yellow, and four of a shade of scarlet. The scarlet and crimson varieties are probably the most beautiful, as the colors are very brilliant. It is rather a difficult matter to transplant them successfully, as they have in their wild state very large uncouth roots, caused by the annual burning of the woods, which kills the tops down to the ground. This does not injure the roots, which continue to grow and send up new shoots; but the roots have very few fibres. I have hunted a great deal to find young seedlings, but have never succeeded in finding one, nor have I ever known any one else to find any. They produce an abundance of very fine dust-like seeds, but I have never tried sowing the seeds."

NEW OR RARE PLANTS.

Ipomœa leptophylla.—This is a hardy herbaceous Morning Glory—not a climber or trailer! It is a native of the plains of Nebraska and Wyoming, to Texas and New Mexico. It has massive fleshy roots, that work deeply into the earth, ascending stems—sometimes procumbent with erect laterals—two to five feet long, small linear leaves three to four inches long, by one-fourth inch or less in breadth, and rosy-purple, funnel-shaped flowers some three inches long. Our specimen is growing in the sunny face of a rockery, and is very thrifty and floriferous. It is June before its stems venture above ground, but then it grows rapidly, and is in bloom by the 20th of July. Mr Hovey, of Cambridgeport, speaks discouragingly of it, in so far as all his attempts to get it to flower, fail. Our specimen, being well established, gets no care, and, so far as we know, needs none.—*W. Falconer.*

Solanum Torreyi.—A perfectly hardy and very showy perennial species, a native of the prairies of Kansas and Texas. From mid-July till Fall it bears, quite freely, corymbs of purplish-violet flowers that are from one to one and a half inches across. The leaves are many, moderately ample, hispid, five to seven lobed, bright green, with a rusty violet suffusion along the edges and petioles of those at the end of the branches, also on the growing points. There are a few small green prickles along the midrib, and sparingly on the larger veins, on the back of the leaf. The cord-like underground stems penetrate deeply, and from pieces of them young plants are raised. Last year we had but one specimen, which, on account of alterations being made where it grew, we were obliged to remove. and not being aware of its life-tenacity, we were particular to lift it with all the roots possible, and dug three feet deep to effect our purpose. Some broken roots were scattered about the hole, and now, where we had but one plant last year, we have a dozen unlooked for plants to-day. It enjoys the sun, and seems to bear our drouths unflinchingly.—*W. Falconer.*

SCRAPS AND QUERIES.

Variations in Junipers.—J. G. R. R. writes as follows:—"I send herewith a twig of what I have for the Irish Juniper. It grows branchy, and the leaves fall apart. I see it at other places growing so compact and smooth. Can it be that it is the soil I have it growing in causes this habit, or have I the wrong thing? My other evergreens behave somewhat in the same way, particularly the Arborvitæs. Now, if I have the true variety, will the trees, when transplanted into other soil, assume their natural or ordinary shape? If an answer to this would be in place in the columns of the *Monthly*, it will oblige a constant reader and subscriber."

[The Irish Juniper is one of many varieties of the common Juniper (Juniperus communis), and differs only from it in growing very upright and compact, instead of bushy. This being the only difference, a twig such as is sent is not sufficient to determine it. It looks like the Irish Juniper. We have never heard of soil making any material change in its character. The character of these varieties, such as the stiff upright growth of the Irish and the yellower tint of the Swedish, cannot be maintained in seedlings; but has to be kept up by propagating the plants from cuttings.—Ed. G. M.]

Dahlias in California.—A correspondent in Cal. writes as follows:—"Our gardens are doing very well; but of one thing I have to complain, and that is the Dahlias. I planted as usual, but they were in too big a hurry; they are now in full bloom, some of them six feet high; they never bore such large flowers since I had them. With a little water, plants in California grow monsters. I had Digitalis this Spring nine feet high. Is it any wonder we have large trees?"

Damage by a Beetle.—Eastern-shore-man, Maryland, writes:—"Having noticed in July number of *Monthly* the complaint of a New Jersey correspondent, in regard to the "May Beetle" in Raspberry plants, I am induced thereby to appeal to you for information. If in your possession, how to prevent the ravages of a beetle of the same kind, which through the months of May and June, *and during the night*, preys upon the foliage of certain kinds of fruit and shade trees—Heart Cherries, more particularly among fruits, and Kilmarnock Willow, Mountain Ash, Purple-leaved Beech and Cut-leaved Birch, among shade trees. Sometimes the Carolina Poplar is included in this list, but Maples, Alders, Magnolias and many others, are never troubled. I have been trying, for the past three years, to hit upon something that would drive them, but to no purpose as yet; and as I am not yet willing

to unconditionally surrender to their use trees above named, my hopes centre upon the assistance of a more scientific student.

I have dusted the foliage of the trees with sulphur (when the leaves were damp); have sprinkled with water strongly impregnated with gas-tar; also water with coal oil, but all to no purpose, as nightly the leaves continue to disappear. Have you ever been similarly pestered? If so, will you be good enough to enlighten me as to how I can preserve the foliage of my "pets," and with it their lives? If the beetles were day-workers I would have revenge, but, as it is, they have a two-fold advantage."

[So far as we can understand, this must be the common "May Beetle," or one of its allies. They are never very destructive where crows abound; they afford a very delicious morsel to these much-abused birds. They used to be common on the trees of the public squares of Philadelphia, but the sparrows keep them wholly down. We saw half a dozen birds in a fight over an unlucky one that had strayed into Logan Square, a few days ago. The encouragment of insectivorous birds is the best antidote to these beetles. —Ed. G. M.]

Our Contributors.—K. says:—"I hardly like to write when you have already such an admirable corps of contributors, who make the magazine, I think, the best in the world!" [But we beg to say that, though we highly appreciate the compliment to the many good writers who so kindly help us, we have always room for a few more. We do not ask for long articles, which take valuable time to write, but prefer the brief notes of thought or experience, dashed off on the spur of the occasion.—Ed. G. M.]

Garden Flowers in California.—The increasing taste for gardening in California is well attested by the numerous notes we receive from correspondents, as to what they are doing there, and which it always gives us pleasure to receive. Here is what one writes to us about some well-known flowers:—"You say you like to hear of fine plants, shall I tell you of some of mine? I have a fine Fuchsia, 'Brilliant' by name; it was in the mail bag in May, 1876; it commenced flowering in September, and from that day to this it has not been without flowers. It had ninety odd flowers on it at one time; it now has three pairs of twins, that is, two flowers the tubes of which are united, while the corollas are distinct. Again, I have a foliage Begonia, with leaves over a foot across, and twice as long. Another, a Perennial Phlox, with a head on fifteen inches across. Once more, a Tiger Lily, with a flower eleven and a half inches from tip to tip of opposite petal. I don't think you will believe half of this, but it is all true."

Asplenium Trichomanes.—A. C. Tuttle, Baraboo, Wis., sends us, for name, the above very pretty fern, which he says is quite abundant at Devil's Lake, near him.

Chrysanthemum fœniculatum.—G., Louisville, Ky., sends us, for name, the above, which he says he has had several years, and always attracts attention in his garden by its pretty foliage. The flower itself is white, like the common Ox-eye Daisy, but the glaucous, fennel-like leaves are beautiful.

Convolvulus arvensis.—W. P. P., Onargo, Ill., writes:—"I send you inclosed a vine that is fast taking possession of a corner of my grounds. The tenacity with which it holds on to life, and its wonderful capacity for extending itself over, are alarming me. It sends its main root down perpendicularly, I do not know how far. The one I send you is nearly three feet long, and where it was cut off it is about as large as it is at or near the surface of the ground. It has a small white blossom, probably about half the size of the common Morning Glory. Can you tell me what it is, and the best method of subduing it? Cultivation seems to have no effect upon it, except to check its growth for the time being. I have covered it up, several feet deep, with mulch, and yet it forces its way up through. Please respond, and greatly oblige one of your subscribers."

[This is that identical "Lily" about which we made a note from an English paper recently. Its "proper" common name is the "Field Bindweed," and its botanical name Convolvulus arvensis. Perseverance in digging it out carefully, every time you see a green leaf, is the only remedy, and it is effectual.—Ed. G. M.]

Pruning Evergreens.—Mary S., writes: "Can you tell me how I can make a Norway Spruce get back again the beauty of its early years. I suppose you will say 'plant another;' but if there is any way to mend it I would prefer."

["Plant another!" No,—rather we say read Gen. Noble's paper in this number.—Ed. G. M.]

GREEN HOUSE AND HOUSE GARDENING.

SEASONABLE HINTS.

Those who wish to have rooms or greenhouses gay through the Winter, must soon begin to think of it now. There may be many things growing in the open ground that would look well in pots, and these may be "lifted," as gardeners say, about the end of the month, and put into pots for the purpose. In lifting these, it is best to choose a dull day for it, if possible, and when potted they should be thoroughly soaked with water and placed in a shed, or some other cool shady spot, for a few days, or the leaves will wither and fall, and of course mate-



A. VITTATTA HARRISSONÆ.

rially detract from the beauty of the plant. Other little things in pots may also be potted into a trifle larger pots, if they show signs of growing freely, though care must be taken not to have the pots too large. Large pots are objectionable in window gardening. Hanging baskets may also be got ready now, so that the plants in them may grow and get well established before the Winter sets in. Many pretty ornamental designs, out of very common things, may be applied to pot culture for rooms, and often with very good effect. All that is essential to be be remembered is, that whatever is done or employed, whether shells, old crockery, woodwork or wire, some provision must always be made for the rapid draining away of water. This is what the holes are for in the bottom of flower pots, and all substitutes must have some such way for water to escape.

In our gardens we have now many hardy bulbs which are well looked after, but we have rather neglected bulb culture in rooms, and yet there is nothing easier, and few things more interesting. Last season we saw in several rooms good plants of the Amaryllis Johnsoni, and the whole tribe of Amaryllis is, indeed, among the best of bulbs for this purpose. We do not know any American nurseryman who makes a specialty of them, but a few years ago Mr. John Sherwood, of Bristol, Pa., had a good collection. The number of varieties (by hybridization) and species (by importations), have so much increased in Europe, that now they have some kinds that will bloom—one or another—all the year through. For the benefit of those who may not know what are Amaryllises, we give a cut on the preceding page of a new kind, introduced by Mr. Wm. Bull, from Lima, in Peru (A. Vittata Harrisoniæ), and which he thus describes:—"A remarkably distinct and effective variety of Amaryllis. It has a stout glaucous green scape, bearing a two-valved spathe, from which issue several (about five) pedicellate flowers, which are remarkable for their long narrow tube, fully three and a half inches in length, the segments of which are slightly spreading at the tip, opaque waxy white, and marked on each of the six segments with two broad deep crimson lines, running a considerable distance down the tube. The flowers are sweet-scented, with a faint order of Daphne." They are so easy of culture that we have known some to flower year after year in the same pot, and under neglect that would destroy most ordinary plants.

Those who have greenhouses, pits or frames, will now see to having any necessary repairs attended to. White-washing annually is serviceable, destroying innumerable eggs of insects, in the war against which the gardener should take the initiative; sulphur mixed with the white-wash is also serviceable. Powerful syringing is a great help to keeping plants clean, and should be frequently resorted to.

It is a very good time to look around for soil for potting purposes. The surface soil of an old pasture forms the best basis, which can afterwards be lightened with sand, or manured with any special ingredients to suit special cases, as required. The turfy or peaty surfaces of old wood or bogs also come very "handy." A stock of moss should also be on hand for those who crock pots, in order to cover the potsherd; moss also comes in useful for many purposes connected with gardening, and should be always on hand.

Ornamental annuals for winter-flowering should be at once sown, not forgetting Mignonette, to be without which will be an unpardonable sin. Chinese Primroses, Cinerarias, Calceolarias, Pansies, Polyanthus, etc., should be sown. Winter-blooming Carnations and Violets should not be forgotten. They are now essentials in all good greenhouse collections. The Calla Ethiopica, old as it is, is a universal favorite, and should now be repotted, when it will flower through the Winter finely. Oxalis, Sparaxis, Cyclamens, and such Cape bulbs that flower through the Winter, should be replotted now.

COMMUNICATIONS.

TABERNÆMONTANA CORONARIA FLORE-PLENO.

BY EDWIN LONSDALE, GERMANTOWN, PA.

Knowing your just appreciation of the good and the beautiful, I send flowers for your gratification that were taken from a plant I have here under the above name. No flowering plant is worthy of more praise than this one. In color, elegance in the arrangement of the petals, delicacy in fragrance, freedom of bloom, it has few equals and no superior. The color is pure white; the petals are elegantly crimped at the edges, and there is less formality in the make-up of the flower than any other with which I am acquainted.

The plant from which the flowers were taken is planted out in a prepared bed in a rose house, where it is a mass of healthy foliage, flowers and buds. I have estimated there are upwards of two thousand flowers and buds, in various stages of development, on it at the present time. It is about three feet high, and two and a half feet through; of compact growth, making a handsome show.

By the casual observer it is generally taken for a Gardenia, but it differs from that well-known genus in its producing its flowers in cymes. As a flowering shrub it is more useful than strikingly ornamental, for the flowers are generally found nestled amongst the foliage; this is owing to the plant throwing out two shoots—one on each side of the cyme—before any of the flowers have expanded. It answers very well to the description given to T. camassa in the *Monthly* for June. If the new comer proves superior, in any one particular, to the subject of this sketch, there is no doubt about its being a very valuable acquisition.

A NEW USE FOR THE LADY BUG.

BY C. J. H., CHAMPAIGN, ILL.

While we have been looking for some safe, sure and cheap remedy for the *green fly* as it attacks our plants in the dwelling house where tobacco smoke cannot be easily used, lo! a panacea, in the shape of our lady bugs, is at hand, and answers the purpose precisely. A gentleman of our city, having a vine which was covered with the pests (green flies), took up a handful of the lady bugs, and placed them on the plant one evening. The next morning not a green fly was to be seen. All were devoured, and so perfect was the work done that not one has been seen since. Cannot we make still more use of them?

WINTERING EUCALYPTUS GLOBULUS.

BY WM. FALCONER, CAMBRIDGE BOT. GARDEN.

Last year we planted out a six-foot high plant of the Blue Gum tree, and lifted it an eleven-foot specimen. Having been previously grown in a pot it lifted with a ball, and we tied up its branches loosely, and planted, or rather "heeled in," the tree, in a sloping position, in a six feet deep cold frame, which was ventilated on every favorable occasion, throughout the Winter. It wintered first-rate, without the loss of a leaf, and now again it is out, a big and thrifty tree.

REMEDY FOR SLUGS.

BY MR. J. M. JORDAN, ST. LOUIS, MO.

Permit me to say to florists, who are troubled with slugs destroying plants, that they can be easily caught by spreading leaves of lettuce on the benches, or among the plants. They eat it in preference to any other plant, and it seems to stupify them so that they can be caught in the morning.

NOTE ON THE NIGHT-BLOOMING CEREUS.

BY J. J. N.

The Night-blooming Cereus isn't always "night blooming," in the common acceptation of the term. A variety (most probable the *erectus*) blossomed this year on June 5th, and at nine o'clock the next morning they were fully expanded, though they withered soon after. It gave a second course of blooms June 30th, and they were open at seven o'clock P. M., and remained till eight A. M. the next day. Was it not due to the low temperature of the house, it not being more than 60°?

REINWARDTIA TRIGYNA.

BY F.

One of the brightest and best of winter-blooming plants, a native of the mountains of India. It will thrive in our coolest greenhouses, but to enhance its merit and secure its worth, warmer Winter quarters is desirable. Its flowers are bright yellow, fully an inch and a half across, and are profusely borne on old plants, and even three months' cuttings bloom freely. Now is the time to prepare for Winter. A stubby growth in Summer, and a 50° to 55° in Winter suits them admirably, and, as they finish blooming, they may be transmitted to a colder place. A succession may be had by timely introducing from a cooler temperature to a higher. They are not particular as to soil, but frequent syringings are beneficial.

EDITORIAL NOTES.

PLUMBAGO LARPENTÆ.—We are pleased to observe that this herbaceous perennial is receiving extended attention. The intense blueness of its flowers can hardly be surpassed, and then it blooms so freely in late Summer and Fall after

the majority of hardy plants have ceased for a season, and its compact habit, surely should command respect. It is a native of Northern China, but not quite hardy in our Northern States, though a well-covered cold frame, or any odd corner in a cool greenhouse, is good enough Winter quarters for it. It has a mass of "roots," or underground stems, which, if divided in February, or before active growth begins, yield a great increase of stock.

Fuchsia procumbens.—Mr. Lonsdale sends us a plant of this with a few open flowers on it. They are small, of a brownish tint, and with the recurved sepals purple. It is not a showy plant, by any means, but when closely examined, is pretty. It is so very distinct from Fuchsias as generally seen, that it will always interest one to look at it, and perhaps when covered with flowers may be more showy than in this condition it promises to be.

Tropical Pitcher Plants.—Those interested in Nepenthes generally, should make a point of seeing the collection of Mr. Such, at South Amboy, N. J., where are most luxurious plants, festooned with pitchers—large, perfect, and intensely colored. Almost every species and variety in cultivation, from the tiny Cephalotus, of Australia, to the N. phyllamphora and Rafflesiana, of the Indian Archipelago, are there, growing to perfection. Mr. Taplin, the talented manager of Mr. Such's establishment, has succeeded in raising a number of seedlings, many of which are of sterling merit, and present characters of distinction apart from anything at present in our gardens.

Forcing the Lily of the Valley.—A writer in the *Hamburger Gartenzeitung* gives some particulars of the raising and forcing of the Lily of the Valley in the establishment of E. C. Harmsen, of Hamburg, where it forms one of the principal objects of culture. It is in this and other nurseries in Holstein, not far distant from Hamburg, that the Lily of the Valley is cultivated in vast quantities for export. Millions of crowns, it is stated, are annually sent out from the one establishment named. The soil in which it is grown is a sandy loam. In Autumn, the ground is prepared by trenching to a good depth, and liberal manuring with rotten stable dung. It is then laid out in beds about four feet wide, with intersecting paths a foot wide. Six rows of plants are put in these beds, in furrows three to four inches deep, or so deep that the beds are covered with at least an inch of soil. When time is of importance, or the soil is of a wetter nature, it is customary to take out the soil from the first bed to the required depth and wheel it to the side of the one to be planted last. The plantlets are then scattered over the surface and the soil from the next bed thrown over them, and so on to the end. After the first frost has set in sufficiently hard to facilitate the operation, the beds are thoroughly mulched with rotten dung, from spent hotbeds by preference. A thick layer of this serves not only to nourish the plants when growth commences in Spring, but it also acts as a protector from frost during the Winter; moreover, during the succeeding season it prevents annual weeds from getting the upper-hand. This is all there is to be done the first season, and nothing but weeding the second and third year is necessary till about the middle of October of the third season, when the plants are ready to lift. The labor of lifting and sorting the flowering-roots from the others is quickly performed. The former are stored away in a cold house after shortening the roots, and the latter ranged in layers and tan-pits. For early forcing, the strongest and ripest sets are selected. The bed of a propagating-house with bottom-heat has a layer four inches thick of sand, into which the roots, wrapped in moss, are plunged. With a bottom heat of 65° to 75° at the beginning, the watering is liberal, and after three days the heat is increased from 88° to 100°, and maintained at this until the appearance of the shoots above ground. It is better to cover the beds with sashes, and shade in sunny weather. To have the Lily of the Valley in flower by Christmas it is only necessary to commence about November 23d or 24th, and carry out the preceding instructions. The great bottom-heat is especially necessary for very early forcing.—*Gardener's Chronicle.*

SCRAPS AND QUERIES.

Double White Oleander.—E. inquires whether there is really a *double* white Oleander in cultivation here? This we cannot say, but there is no reason why there may not be. The writer of this recently saw plenty of them for sale,in the Paris flower markets. So far all that he has seen in this country, in flower, were single white.

Calla Æthiopica.—D. W., Denver, Col., writes: "Why is there so little said about this general favorite? I have two hundred planted out in the garden, which seem to be doing splendidly, but what to do with them, as cold weather approaches, is the question. Should they be taken up, potted, and kept growing, or would it do to take them up, let them dry off in a cellar, and then pot them from time to time, as they are wanted for sale, or for flowers?"

[Florists who grow the Calla, or Richardia Æthiopica, for its flowers, require them to be in bloom between Christmas and Easter, and even those who want them for window culture, desire to have them through the Winter. For these purposes they rest them somewhat during Summer by keeping dry, and about the middle of August, or September, pot and water them. If they are kept dry till later, they will, of course, bloom later, and then it becomes a question whether later flowers are desirable.—Ed. G. M.]

Purple-leaved Ivy.—A correspondent inquires whether this plant referred to in a notice from *Garden* in a recent paragraph, is yet in this country. We have looked through several catalogues, but do not see it. If any one has it, send word to Mr. T. S. Strickler, West Troy, N. Y.

Culture of Hedychium Gardnerianum.—Mrs. R. B. E., writes:—"Will you please inform me through the *Monthly* what treatment is necessary for Hedychium Gardnerianum. I have one that grows luxuriantly, but, though three years old, gives no hint of blooming. What is its season of bloom? And does it require rest from growth? And, finally, is it worth growing at all?

[It is decidedly worth growing. The yellow, sweet flowers open in Winter. The best way to grow it, is to plant it out in the open border in Summer. In Fall lift it carefully, and put in a pot or tub, and keep it growing in a moderately warm greenhouse, and flowers will come from the top of the stems before Spring.—Ed. G. M.]

Culture of Cactus.—A subscriber, Mount Pleasant, Iowa, writes:—"Sometime at your convenience, if you will have the kindness to give one article in *Gardener's Monthly* to cultivation of Cactus, varieties, soil, and any treatment necessary to successful growth, it will gratify a number of your subscribers."

[The various kinds of Cactuses love our Summer heat so well, that we might say in general, plant them out in the full sun in Summer, and then take up, and re-pot in Fall. This is the way they are done in Mr. Shaw's Missouri Botanical Gardens, at St. Louis, and we never saw more healthy or beautiful plants. When they become large they are awkward handling, on account of their spines, and then they are best grown in tubs, and the tubs set out in the full sun during Summer.

But there are some leafy kinds of Cactuses which we believe thrive better in partial shade; of these are the Epiphyllums, though these like the heat. The best and most generally known of these are the E. Jenkinsoni, E. speciosus, E. speciosissimus, E. Ackermanii, and E. truncatum and varieties. There is E. latifolius, and E. Crenatus, often grown, which thrive in full sun, as the other named ones do, but they are not so showy in flower. They are often grafted on more woody Cactuses, and in this way do very well. The E. truncatum is grafted on Pereskia aculeata, and thrives well on it. Any kind of soil suits the Cactus family.—Ed. G. M.]

Fruit and Vegetable Gardening.

SEASONABLE HINTS.

So far as fruit growing for market is concerned, we hear on all sides that the season has been unprofitable, and that there will be no encouragement to plant new orchards. The talk is as if fruit growing for market was overdone. But this has always been the talk ever since any one can recollect. Everything will be overdone sometimes. No one knows when he plants just how heavy the crop will be, or just how many persons will want his crop. This uncertainty must result sometimes in less than people want, in which case those who pay the most get it; or in too much, when the grower is glad to get

what he can, which often means growth at a loss. These laws are often aggravated by seasons of general loss, and consequent inability to buy by those who are usually customers. Still, in these cases, it is the weakest which are ruined. The strong grower stands the loss and keeps on with his business, keeping it up to the standard. The good times come, and he fills his pockets rapidly. These laws have been so universal, and will prevail so surely to the end of the world, that we would not be surprised to find very extensive planting going on by the prudent and far seeing, instead of the little which some people anticipate.

At any rate the planting for one's own use will go on as heretofore, and this, perhaps, to an extent hardly ever known before, for with little money to buy, people find out the advantage of growing as much as possible for themselves. September is, of course, rather early to plant fruit trees of any kind, but it is a capital month to send for catalogues and study the varieties offered, and then to look around and find out how such kinds succeed in your own vicinity.

COMMUNICATIONS.

WHICH IS THE BEST RASPBERRY?

BY MR. G. WRIGHT, ROCK FALLS, ILL.

Mr. Galusha lives at Normal, in the centre of this State, and says all varieties except Turner were killed by the cold of last Winter. I live in the northern part of Illinois, and never saw the Philadelphia winter-killed when planted on poor ground, but on low or rich ground I could never get but one crop, whether the Winters were mild or severe. They invariably were killed nearly to the ground, while a few bushes on a dry, sandy knoll have borne abundantly without fail for nine years. So I planted a row near a row of Lombardy Poplars, which have exhausted the soil of moisture and fertility until nothing else will grow, and the Philadelphias have borne for three years such crops as I never saw in any other berry, and this season they seemed to surpass themselves. But for all that, I can make more money from the Elm City than from Philadelphia, for the reason that Elm City ripens immediately after strawberries, and is gone before the Philadelphia is ripe. Besides, it is a better flavored berry, and is as firm as any Black Cap, either for canning or shipping. The bush is perfectly hardy, and the sprouts kill as easily as any weeds by cultivation. With Black Caps I have seen nothing to surpass the Seneca in hardiness, size or flavor, and with me it is more prolific than Mammoth Cluster. The bush is more like a blackberry, rampant and thorny, and the berry has the flavor of a blackberry, sweet and luscious. The Davidson's Thornless did well for a few years, but a kind of aphis, or bark louse, attacked it last year, and now there is scarcely a vine in this vicinity. It is evident that for advice in raising fruit one must not go far from home, for if I should follow the advice of Coleman, in the *Christian Union*, and plant the Davidson's Thornless for a single variety, I should never have any berries, and very likely the Elm City may not be worth cultivation in the East.

FRUCTIFICATION OF THE FIG.

BY EMMA C. BREWSTER, KINGSTON, MASS.

In a recent issue of the *Monthly*, I saw an account of the "Fructification of Figs in Smyrna," upon which I wish to say a few words. The writer stated that in order to make the fruit set, strings of figs were taken from a pistillate tree and hung across a staminate tree, that the flies which are within pistillate figs might carry the pollen from them to the staminate ones. Otherwise, the fruit would drop off. Now, in my Massachusetts home we have raised figs in the open ground for more than twenty years. Father began with one tree, and increased his stock by off-sets until they numbered fifty trees. Then we sold $20 worth, and this year have again sold as many. We have no more to sell now—so this is not an advertisement. I make this statement only to show that I have had considerable experience in raising figs; and although we have several crops of the delicious fruit every Summer, we have never hung a chain of figs across the branches. Are all our trees pistillate? Nor are they infested by any fly or other insect, and I hope they never will be. The fig tree does "cast her untimely figs when shaken by the east wind," to prevent which the trees are set upon the west side of the house in dry seasons; wherefore the figgery is near the kitchen, that all the waste water may be bestowed upon it—much more effectual preventives than stringing fruit across their branches. Had the writer stated that this course was pursued to impregnate the seed when it was desired to raise new

varieties, it would have sounded more plausible; yet even then I should have doubted, and I can make you doubt. Figs come out all over the tree in clusters, without previous flowers. There are always three crops upon a tree at once. The ripening fruit, the blossoming figs, and the newly appearing buds. In a good season, with proper care, all these crops may be ripened, and as the first one begins to drop, a fourth appears, which keeps on the trees (without any aid of flies), while they are packed away for Winter, and ripen the next Spring. When a fig is half grown it is in bloom, then if you pull open the hard, green case, the beautiful, rose-colored interior will rival any flower in the garden. This is the only time when the flies—which infest the Smyrna fig crop to such a degree as to fill the hold of every home-returning Smyrnaite with their larvæ crawling from the drums—can fructify the figs. Now the worm within the ripened fruit must have become a chrysalis, which has worked its way clean through the skin, for a fly would have no power to do this. Then the fly emerges from the chrysalis, flies to a blossoming fig; but how is she going to enter it? The blossom is so firmly encased in tough, leathery envelopes, as to defy the entrance of any insect whatever. The fly must pierce the skin and lay her egg in the outer green envelope. Now, how can the larva which will hatch from this egg, laid by a fly which emerged from a chrysalis formed in another fig, have any effect upon the blossom within this one, when he finally reaches it? A Professor of Natural History once told his class that the pea was formed by the weevil, and that if, when the peas were planted, the farmers saw a goodly number of weevils running in the furrows, they rejoiced, for they knew the crop would set. He could not explain how the weevils underground, could have any effect upon the fruit in the blossom which was yet to come. Nor can I. Still, peas form where there are no weevils, and figs where there are no flies.

GAS LIME.

BY J. O. RANSOM, HAMMONTON, N. J.

Gas lime has been extensively used in this place, and generally good results have been obtained by spreading 25 to 50 bushels per acre broad-cast on the surface in Fall or Winter, that the atmosphere may modify its acrid character, and ploughing it under in the Spring for corn, or in the Fall for wheat and rye. It is especially useful in subduing the wild grass and bushes on new land, and aids materially in preparing the coarse vegetable fibre in the ground for a good crop, if used as above. It will often destroy a crop if spread once in its raw state.

It is also useful in renovating old orchards in grass by ploughing it under. On old land to be seeded with grass, indicating the want of lime, it is generally believed here that shell or stone lime is safest and best, but on raw, wild soil, gas lime is best and cheapest for this locality, where it has been used. No benefit has been discovered from the use of any kind of lime on small fruit crops.

OIL FOR FRUIT TREES.

BY CHARLES FREMD, RYE, N. Y.

In the early part of March I painted, with linseed oil about a dozen of apple, cherry and other trees. Some were vigorous and healthy, others were not. One of the apple trees was covered with the white scale. The trees were from one and a half to two inches in diameter, but it killed three out of six, all of them with a tender bark, such as the Sweet Bough, &c. On these the oil penetrated the bark clean through, also at fresh cuts from pruning, it dyed and blackened both bark and wood. In one instance it encircled the whole tree. Trees with a thicker bark, like a Greening, are doing well. I killed one cherry tree out of three, and I nearly killed a Magnolia Soulangeana with it.

I have certainly no reason to complain of the trees which survived the treatment, but the loss is far greater than the benefit.

A neighbor of mine told me, a few days ago, that he greased some apple trees with lard oil over fifteen years ago, and killed and injured many very fine trees. Ever since he uses a solution of potash.

EDITORIAL NOTES.

A GRAPERY AND SANATORIUM.—Some time since our esteemed correspondent, Mr. W. T. Harding, gave a plan whereby chickens and grapes might be managed together. We do not know why the idea may not be extended. It is not likely that railroad depots with glass roofs can be turned to a grape growing experience, to the disgust of thousands of passengers, to whom the fruit would be out of reach! But surely there are occasions that might be made available to

grape growing, if the proper intelligence could be found to direct the experiment. The great trouble with most extensive horticultural experiments that have been started by capitalists in this country, is that they have made the selection of quacks to manage them. There are plenty of excellent gardeners in this country, but somehow those who need good skill seldom have the knack of finding it when wanted.

The Devonport (England) *Independent* gives the following account of a monster grapery built in connection with a "Health Lift" establishlishment, or "Sanatorium":

"The 'Sanatorium' at Saltash, near Plymouth, which was erected about seven years since, is an extensive greenhouse, built at great expense and labor, for the production of grapes and other fruit. It is situated on the southern side of a hill, in a sheltered valley, at the western end of the Port View Estate, and its immense area of glass might be seen from various points in the neighborhood. The vinery is 450 feet long by 80 feet broad, and it will help the reader to perceive the extent of it when we state that the glass covering it weighs upward of 20 tons. It contains more than 500 vines, the majority being in bearing condition, though not yet fully grown. These include fifty varieties of grapes, the whole of them having been personally selected from the south of France while in fruit. In situation and arrangement, the place is well laid out, and what is of great importance, it is abundantly supplied with water, which is carried over the entire building and distributed in an efficient manner. The vineyard—which we prefer to call it—is pleasingly arranged in tiers, and divided into several compartments, with walks passing through them. In every respect the capacity of the place to produce grapes equal to any grown on the Continent has been proved. The sight of the vineyard at this moment is remarkable. Above, around, in every part of it, immense bunches of grapes are ripening in countless profusion. The vista of every pathway in each of the compartments, and of every line of sight, turn in what direction one may, shows overhanging canopies of grapes, prodigal in their luxuriance. Many of the bunches are large, being more than 6 inches by 15 inches. Even yet, however, the full resources of the place have not been reached, either in amount or earliness of fruit. It is certainly not more than three-fourths covered with the vines; and, consequently, every year the produce is rapidly increasing. Last year 3,000 lbs. of grapes were obtained; nearly double that amount will be gathered this year. The full bearing capacity, which it is expected will be reached in about three years' time, has been estimated at 10,000 lbs., and that estimate is considered within the mark. It is a very important fact, also in the value and success of the undertaking, that the luxuriance of growth and the abundance of fruit are scarcely less striking than the freedom of the vines and grapes from disease. We may add that peaches are also grown in the Sanatorium. A crop of potatoes of a highly remunerative earliness was likewise obtained this season from the ground between the rows of vines. In testimony of the safety and security of the structure itself, and in falsification of any forebodings that might have been made of the precariousness of the erection, it should be stated that during the whole seven years of its existence, scarcely any damage has been inflicted either by wind or water. The place has not yet been heated, but a considerable outlay is about to be made in this direction to secure early ripening, by which it is hoped to gather the crops in July, instead of, as at present, in September. There are some acres of surrounding land of an analogous character to which the vinery may be extended, the site commanding a southern view."

Grape Culture under Glass.—We have had of late few contributions from our own cultivators on this very interesting branch of gardening. Yet it is one on which there is a great deal yet to learn. As glass culture is very much the same all over the world, it may serve a useful purpose to give the following practical paper from the *London Journal of Horticulture:*

"Knowing that your space is valuable, I do not propose writing a long history of where the vine comes from, under what conditions it thrives best naturally, how it has been treated in this country in past ages, or the position it is likely to occupy in time to come; but I particularly wish to give a few practical suggestions on vine-growing which may be of service to those who are desirous of securing a good crop of grapes. To make what I have to say as easily understood as possible, I will arrange my remarks under separate headings, beginning with—

"*Thinning the Shoots.*—It is said that a prevailing error amongst amateur gardeners is an aversion to pruning trees and plants so closely as they should be pruned, and if this be true in cut-

ting-in the dormant wood, it is none the less so in thinning growing shoots. In pruning vines it is a common practice to leave two, and sometimes three eyes to each spur. Good grape growers do this, but they are very particular in removing all the buds, when they do start, excepting one—the strongest and most fruitful. Many, however, allow every bud to grow into a shoot for the season, as may often be seen by two or three shoots clustering together. I can attribute this to nothing else but fear of doing harm by removing any of them, whereas the greatest harm occurs in allowing them to remain. It is a simple matter to prove this, and I would advise those who think differently to try it. One good shoot from each spur will produce more and better fruit than three or four shoots from the same base. It is well known that the greatest harm that can be done to any fruit tree is crowding the wood, and it is quite impossible to grow three or four shoots from one vine bud without injuriously crowding them. Fine crops can only be secured by thoroughly ripening the wood; and although vine wood may become brown in color, it will not ripen thoroughly under a mass of leaves. I have a house full of old Black Hamburghs which I intend to make youthfully vigorous this season. They are showing from two to six buds from each spur. As soon as I can see which bud has the finest promise of a bunch, all the others will be removed, and if the single shoot does not become very thick this year, it will be sure to ripen well, and that will be worth a great deal next season.

"*Stopping the Shoots.*—This is another matter which should never be neglected. It is a bad plan even when the shoots are well thinned to allow many of them to run many feet before they are stopped. This is just another way of overcrowding; but it is worse than that, because the shoots must be stopped some time, and when yards in length are removed from them at a time, the consequence in loss of sap is serious. My plan—and one I find answers well—is to pinch every shoot two joints beyond the bunch, and this is done as soon as the shoot is sufficiently long to admit of doing this. The point thus early taken away is no thicker than a small *o* in the *Journal*, and it is impossible for this to have any checking tendency. Those shoots bearing no fruit are stopped three or four joints from the main rod, and they are not allowed to grow further than this the whole season, as it serves no good purpose to let them do so.

"*Tying the Shoots.*—I have seen many shoots not tied until they were breaking their points against the glass, and others again are in too great haste to train them into their permanent places, and break them in consequence. There is no difficulty in tying shoots which grow in a right direction from the first, but those which go the opposite way from the wires have to be carefully dealt with, such shoots must be tied two or three times. At the first tying only incline them out of the direction they are going, next time bring them half way to the wires, and finally at the third time fix them in the position they are to occupy.

"*Thinning the Bunches.*—All vines in a healthy condition always produce many more bunches than are sufficient for a crop. Many shoots produce two bunches; the larger one is generally next the rod, and the smaller one nearer the point. This small one should always be removed first, and this must be done all over the house, and if there are still too many, cut away the poorest of those which remain. Vines of different strength will bear different crops in weight, but in the generality of cases it is safe to leave a bunch to every alternate shoot. Amateurs, as a rule, err in allowing too many bunches to remain on, and in nine cases out of ten this is the sole cause of the grapes failing to come to perfection.

"*Syringing.*—This is an operation which most amateurs like to try their hand at; but squirting morning, noon and night keeps the leaves and surface of the border in an overdamp state, and nothing will produce mildew quicker than this. Syringe thoroughly, and have done with it for days or weeks together, if no insects appear.

"*Watering the Roots.*—Without abundance of moisture at the root, no good will ever result from any amount of attention to every other particular. Some recommend about three waterings in the season where the border is well drained, but this is not nearly sufficient. Once a fortnight is not too often to saturate the roots when the grapes are green, and watering should not be discontinued until the fruit is more than half ripe.

NEW OR RARE FRUITS.

Hames' Seedling Apple.—We have received from M. Cole, of Atlanta, Ga., specimens of Hames' Seedling Apple. The specimens were sent us June 25th, and in the letter accompany-

ing them Mr. Cole says the two sent are fair specimens of a lot received from the original tree. They were very large, the best one measuring 11¼ in., in circumference and weighing 10¾ oz. Considering everything, we should say it is superior to the Red Astrachan, one of our earliest.

THE MUSSER PEACH.—On the 17th July we received from H. M. Engle, Marietta, Pa., some ripe Musser Peaches. They measured 6 inches in circumference, were very juicy, sweet, and of a good color, and were decidedly the best of any received so far this season.

BOWERS' EARLY PEACH.—Messrs. Marris & Miller Frederick, Md. writes:—"We send you to-day by express another specimen of our new seedling peach (Bowers' Early as we have named it) the same as was sent you last year. You will notice that it is not as large as those a year ago, the fruit was not thinned out and the tree had too many on it to bring to perfection. It is also seven days later than last year, the first ripening on the 11th and last year on the 4th of July. Our Amsden fruited for us this season and will be ripe in about two days; Beatrice, Louise and Alexander have not fruited for us this season. Hales' Early is not coloring yet, when it ripens, the time will be noted. We should liked to have exhibited Bowers' Early at the exhibition of the American Pomological Society in Baltimore in September, but knowing of no way of keeping it until that time, have sent specimens of it to the following gentlemen, M. P. Wilder, P. Barry, H. M. Engle, Josiah Hoopes, John Saul, and Samuel Sands & Son of the *American Farmer* and would esteem it a favor if you would compare notes with them (if convenient) as to its merits &c."

[It is not possible to speak of the full merits of a peach by its fruit alone. The nature of a variety is to be judged in the orchard. We can only say that this measured 6½ inches round, was of excellent flavor, and we consider it fairly within the field of competition with other first-class early varieties.—Ed. G. M.]

THE FOREST ROSE—Is the rather fanciful name of a magnificent new Strawberry that originated on the sandstone outlyers which constitute the elevated back-grounds to the town of Lancaster, Fairfield Co., Ohio. Mr. J. A. Fetters the proprietor has been rather fortunate as a fruit-grower, having originated a superior peach, which has been favorably reported on by the State Horticultural Society. When walking in his vineyard some years ago he observed a strawberry plant, which pleased him by its thriftiness; in due time this produced fruit which was so attractive that the runners were set out in a bed by themselves. This plantation is still productive after having yielded five successive crops of fruit, and runners enough to plant a large space. The origin of the plant is unknown, but Mr. Fetters thinks it an accidental seedling from one of the three varieties he had been cultivating, the Wilson, Russell and Brooklyn Scarlet.

Description.—The plant is vigorous and productive, foliage good, trusses tall and having from eight to ten perfect flowers that are followed by handsome berries. These are large and heavy, and sufficiently firm to bear transportation; form obtuse—conical, regular, sometimes coxcombed, often two inches across; surface somewhat pitted and having a bright crimson hue, similar to that of the Jucunda; flesh solid, ripening evenly, reddish to near the centre which is paler; flavor agreeably acid but not sour, and when fully exposed and well ripened it is quite rich. A committee of the Ohio Horticultural Society when visiting the plantation, pronounced this a decided acquisition, and declared themselves highly pleased with the variety. The Forest Rose has been pronounced, by those who have seen it in bearing, "one of the best strawberries they have seen."

LATE CONE STRAWBERRIES.—Mr. Chas. Black, Hightstown, N. J., writes:—"I send you to-day a few Late Cone Strawberries for you to test if you do not know it. It was sent to me from Ohio, and recommended as the best late Strawberry known there; and after two years trial with a large number of our best varieties I have concluded that I never saw its equal as a late variety, it is just now (June 21st), in its prime, and those sent are about an average as it grows in field culture. In good heavy soil it is a good grower and very productive, about ten days later than Wilson, has a nice bright appearance after picking, very firm and grows to a good size." [This proved to be a fair sized conical berry, of good appearance and flavor.—Ed. G. M.]

ROE'S SEEDLING GOOSEBERRY.—Mr. E. P. Roe, Cornwall-on-the-Hudson writes:—"I send you a few specimens of "Roe's Seedling" Gooseberry. During the present season when nearly every-

thing has mildewed in our locality, this variety has suffered very little, and the only bushes that were affected stood on a high dry knoll where by mismanagement their roots were disturbed in cultivation during the hot period of drought in May. Hot dry ground around the bushes is the chief cause of mildew (see *Gardener's Monthly* for June), and where these unfavorable conditions were absent there was no rust worth naming. This is the first instance for seventeen years that it has shown any such tendency, but in accordance with my rule to state the truth and the whole truth about my fruits, I frankly say that two or three quarts out of a large yield have been touched with mildew. At the same time I must say that the Downing gooseberry on my place has suffered more, losing in some instances its foliage, and foreign gooseberries in this locality are covered with mildew. The large old bushes in its original home at Newburgh were loaded down with fruit and not a trace of mildew. I do not think there is an American variety that will suffer less except, perhaps, the Houghton, but that is too small to be of much value. In regard to size and appearance the enclosed specimens speak for themselves. In productiveness it is unsurpassed. Will you please send me your opinion, and if you notice it in your paper I will esteem it a favor if you will send me a marked copy."

[All experience has shown that the race of European gooseberries is much more liable to mildew than the native kind; about this there is no question. This mildew is accelerated, if indeed it is not wholly caused by over-heated ground—that is over-heated as far as the gooseberry is concerned—and with care in keeping roots cool, the foreign kinds can be grown with fair success. Within a hundred yards of where we write is an English gooseberry, an imported plant, that has been there to our knowledge more than a dozen years. It is in the full sun, and has never mildewed in all that time, but then the original owner, in picking stones from his garden, piled them under his gooseberry bushes, and in this way the roots are kept cool. It is a mystery to most people why this English gooseberry plant never mildews, but it is no mystery to us. It is these and similar experiences which make us hesitate about regarding any English gooseberry as wholly mildew proof. At the same time we see no reason why such care should not be given to these very fine kinds, as to keep the mildew off them. For these reasons we are very glad that Mr. Roe has taken up their improvement. Some kinds will no doubt be better able to resist mildew producing influences than others, and in this direction Mr. Roe's effort ought to be appreciated. The present variety is very good, though we think not equal to the best English kinds.—Ed. G. M.]

Late Emerald Gooseberry.—Mr. E. P. Roe, writes under date of July 26th :—"Enclosed please find a few specimens of a late seedling gooseberry which I have named the Late Emerald. It keeps its bright green color until it drops off from ripeness and does not turn red when fully ripe like "Roe's Seedling." In the size and abundance of the fruit, in its comparative freedom from mildew, and in the vigor of the plants, I think it is quite equal to the early seedling which was fully ripe some three weeks since."

[This is one of the English race of gooseberries. We do not know how far these will be able to come into competition with the native kinds, but Mr. Roe deserves great credit for these promising attempts.—Ed. G. M.]

SCRAPS AND QUERIES.

Oil on Peach Trees.—E. W. A., Montgomery County, Pa., writes:—"We are regretting the condition of two peach trees, now, I think, in the fourth season of their growth. They have been thrifty, and last year gave us samples of fruit sufficient to show the excellence. We have prized them greatly. Early this Spring I used your plan in washing *all* the fruit trees with linseed oil, and I am curious to know whether this could have been injurious to the peach trees, as they suddenly became sickly, dropped fruit buds and leaves. One, I think, will die. I heard of similar complaints through the country, but do not feel satisfied without inquiring of you."

[The plan of using linseed oil as a remedy against scale, is really not ours. As already stated, it was given to us by a Southern friend, whom we know truthfully told us of its perfect success in destroying the insects, and helping the trees. Knowing this to be a fact, and suffering terribly from scale, we washed a large number of Apple and Pear trees with it, as already stated in our columns, and the trees themselves are living witnesses of the perfect

success of the oil wash. It is clear, however, that others have now used linseed oil with injurious results. Why it should be harmless in some cases, and destructive in others, is past our comprehension. It is a matter which deserves further investigation.—Ed. G. M.]

The best Early Peaches.—W. P. R., Atlanta, Ga., says:—"I should be much pleased if you would revise your last year's list of early Peaches, after this season's experience with them. We, in Georgia, are much interested in early Peaches, and want to know which of the new ones are the best. Where can trees or buds of the Musser Peach be had. I have not been able to find the originator's address. Can you tell me?"

[The opportunities afforded by the Centennial Exhibition were unusual—we do not expect the same chance again. All the knowledge we can gather, so far, we have given from time to time in our pages. We have not had the chance to see all together from about the same places, as we had last year. So far as we know, the Musser is not offered for sale. We have no doubt when it is, it will be found in our advertising pages. So far as it has gone, it proves itself to be a first-class variety.—Ed. G. M.]

Early Peaches.—Mr. G. D. Ledway, writes from Jackson, Miss., that the Alexander Peaches were ripe there May 31st, whilst Beatrice had not, at that date, commenced to ripen. He thinks the Alexander the largest early Peach they have there.

Mr. D. S. Myer, of Bridgeville, Del., also sent us samples of Amsden's June, Alexander, and Beatrice. He says the Amsdens and Alexanders were the last of the picking, the Beatrice the first, and he considers the two former fully five days earlier than the Beatrice. The Amsden and Alexander were very much alike, in every respect, but the Beatrice has a flattish appearance. In regard to the quality, we thought the Alexander best, Amsden next, then Beatrice.

Early Peaches.—Mr. C. W. Westbrook, Wilson, N. C., under date of June 20th, sends us the following:—"I mail you to-day some specimens of Amsden's June and Beatrice Peaches picked from healthy trees. Both picked on the green order. I picked ripe Peaches of Amsdens the 12th inst., from healthy trees, and also imperfect ones of Beatrice on the 15th, from worm-eaten trees. Beatrice are rotting a great deal. No sign of rot on the Amsden, although we have had an extreme spell of wet weather. I had a few Alexanders. They ripen with Amsden, and are very fine."

[The fruit arrived in good condition; there were five of each kind. The largest Amsden measured nine and a quarter inches in circumference, the smallest, five and three-quarter inches. The largest Beatrice was five and a half, and the smallest, four and a half inches. The Amsden is a rounder fruit than the Beatrice. In flavor, Amsden's June was far superior; this may have been partly due to the Beatrice having been gathered before being fully ripe, which we thought its appearance seemed to indicate, though, doubtless, Amsden is the better kind.—Ed. G. M.]

Early Peaches in Georgia.—P. J. Berckmans, writing from Augusta, Ga., thus speaks of the new Peaches:—On May 25th I gathered our first ripe Amsden and Alexander, which I sent to friends in New York. Am much pleased with these new varieties, of which I had quite a quantity of fruit. Amsden, I think averages better in size, and may be a shade better in quality, than Alexander. Both are, however, so much alike as to puzzle me to tell them apart; they are fully two weeks ahead of Beatrice, and this year three weeks ahead of Hale's. Brigg's May was ripe June 1st., a nice-flavored Peach, quite similar to Amsden, but with serrate leaves.

Seedling Peach.—Mr. A. Pullen, Milford, Del., July 19th, writes:—"By mail of to-day I send you two Peaches as samples. Were grown in a garden here from a natural tree four years from the seed. The fruit ripened 10th of this month; tree had on it about half a bushel. Those I forward were remainder taken from the tree this date. The flavor of the ripened fruit seems excellent, but deficient in color. It does not seem to resemble anything I am familiar with of early Peaches. The owner of the tree (W. P. Corsa, of this place), wished me to send it to you and have your judgment upon it."

[As Mr. Pullen remarks, it appears distinct from any other early Peach. It is a half freestone, six inches round, of good flavor, but not attractive in appearance.—Ed. G. M.]

Fruit of Passiflora edulis.—Gœth & Wernhold, Los Angeles, Cal., with some excellent fruit, writes:—"We take the great pleasure of

sending you two fruits of Passiflora edulis by sample post. We have got two plants in the open air full in bloom and fruits, the first time in this part of the globe, as we are informed. The taste of the fruit is like Gooseberry, perhaps still more delicate. As soon as P. Granadilla is ripe, we shall take the liberty of sending you a sample."

FORESTRY.

COMMUNICATIONS.

YELLOW PINE.

BY H. W. RAVENEL, AIKEN, S. C.

In an editorial note in June number, p. 177, you refer to the "Yellow Pine" so called, in connection with Prof. Sargent's reference of that name to Pinus mitis; and express a belief that the Pine lumber which comes to the Philadelphia market is from Pinus australis. If your lumber comes from a Southern market you are probably right. The timber of Pinus australis (long-leaved Pine) is known universally through the timber region as "Yellow Pine." Elliott, in his Botany of the State, says the same name was known in his day.

There is, however, a great difference in the quality of the timber, though all derived from the same species, dependent mostly on the soil, and manner and growth of the trees. Along the damp, rich soils of the sea-board, it grows more luxuriantly, and attains greater height. As you go into the interior, and more especially towards the lighter and dryer soils, the growth is less luxuriant, and the annual increase more slow. In consequence of this, the grain of the sea-board Pine is coarser as the annual deposits are thicker; whilst the best lumber trees are found in the upper country, and especially in the sandy region. This I know to be the case in this State, and I presume it is so in Georgia and other Southern States.

Along the sea-board, an axeman will go into the woods and select his trees, calling the fine grain trees "Yellow Pine," and the coarse grain "Pitch Pine," though both taken from the same grove. He examines the top of the tree, and if he finds it scraggy and deficient in foliage, he knows the grain is close and compact; on the contrary, if the top is full, with large limbs and plenty of leaves, indicating great luxuriance, he knows the grain is coarse. The best "Yellow Pine" used for lumber and for export is obtained in this State, and mostly along the sandy region of the middle country, about the head waters of the Edisto River. Saw-mills prepare a large quantity for local use and for shipment, and rafts of logs are taken down the stream to Charleston for market and export.

The timber of our other Pines is inferior, and is never used when the long-leaved Pine can be had.

EDITORIAL NOTES.

GROWTH OF OAK.—On the 6th of August the writer measured a large number of Oak growths, which were over four feet, and still growing. The variety was Quercus robur. The Oak does not grow near as slow as many suppose. Mr. Hoopes, of West Chester has one—a variety of Quercus macrocarpa that is only twelve years old, and is now 17 feet high and 17 inches in circumference.

FORESTS OF EUROPE.—At the recent meeting of the American Nurserymen's Association a memorial to Congress, praying for a commission to examine the forests of Europe, was adopted.

RAPID GROWTH OF HICKORY.—We measured a plant of a Hickory—Carya sulcata—this Summer which in three years from the seed, had made a growth of 3½ feet. On the grounds of Hoopes, Bro., & Thomas, at West Chester, is a tree of the same kind of hickory 12 years old, which is 16 feet high and 15 inches in circumference; and yet we hear sometimes that hickory is slow timber to grow.

NATURAL HISTORY AND SCIENCE.

COMMUNICATIONS.

PRAIRIE FLOWERS.

BY L. J. TEMPLIN.

SENSITIVE ROSE (*Schrankia uncinata*).

Among the many floral treasures that bedeck the plains and valleys of this land of floral richness, there are none that possess more unique beauty and delicacy than the "Sensitive Rose." It grows in profusion in this valley; being so thick in places as to form almost a continuous carpet of bloom, of considerable extent during the blooming season. It is a perennial, forming a cluster of long, slender, and very tough roots. The stems start, in considerable numbers, from the crown of the root, and radiate in all directions, lying prostrate on the ground. They grow to the length of three or four feet at times, but always die back to the roots in the Fall. The stem is ridged or striate, with numerous short, sharp, recurved prickles. The leaves are compound; having from twelve to twenty, or more, leaflets. They are sensitive to the touch, folding up under rough handling, similar to the real Sensitive plant (Mimosa).

The flowers are borne on axillary peduncles, from one to four or five inches in length. The flowers are quite small, growing in a head one-fourth to one-third inch in diameter. But this is not what is seen when one looks at one of these heads of bloom, for from this there stand out, in every direction, a thick cluster of thread-like filaments about one-third of an inch long. These form a ball, almost perfectly globular in form, three-fourths to one inch in diameter, and of a rich rose-color. On the end of each of these filaments is a minute, gold-colored anther, that gives it a very unique, but delicately beautiful appearance. The seeds grow in a striate silicle, or pod, one and a half to two and a half inches in length. I have not tried transplanting this plant, but those who have tried it about here have, so far as I have been able to learn, invariably failed. Why this should be the case I cannot tell, for I frequently see it growing in grounds that have been in cultivation for two or three years. It can, doubtless, be readily propagated from seed, of which it produces abundance, and it is not very difficult to gather. I do not know how this plant would succeed at the East, but if furnished with a rich, moist, sandy loam, I know no reason why it may not thrive there as well as here; and if it did, there is nothing more attractive to the lovers of the delicate and refined among floral productions, as it is not excelled in these qualities by any of the hundreds of beautiful flowers that adorn these lovely plains.

ABIES ENGELMANNI AND A. MENZIESII.

BY R. DOUGLAS, WAUKEGAN, ILL.

I infer from your remarks on page 165 June number of *Gardener's Monthly*, that you are inclined to think that A. Engelmanni, and A Menziesii of Colorado, are identical. I procured the seeds collected by Dr. Parry, crop of 1874. We sowed the two above-named, side by side; the A. Menziesii grew well; a few seeds of Engelmanni germinated, but we could not carry one plant of the latter through the first Summer, but this does not prove anything, for Dr. Parry wrote us that he gathered them at such an elevation that, although early in the Fall, there was a severe frost at the time, so you see that, even if they were A. Menziesii, the seeds would not be matured so as to grow as well as the same kind gathered at a lower elevation. Now, if you botanists cannot find any distinctive feature in which they differ, except in the length and size of the leaves and cones, I think they will turn out to be one and the same thing. The difference of 2000 or 3000 feet of altitude will not only make a difference in the size of the cones and leaves, but also in the general appearance of the tree.

That noble group of Spruces you and I admired so much up in the P. flexilis and aristata region, according to elevation, must have been Engelmanni, and yet they hugged the water-course, just like Menziesii, had the same glaucous hue, and the same general form and outline. I inferred, from some descriptions, that the Engel-

manni was not glaucous, but you wrote that those you saw on Gray's Peak were very much so; therefore, you will have to assure me that there is a difference in the construction of the cone, or that you have climbed a sapling twenty feet high without gloves! If you can perform the latter feat, I will be ready to make affadavit that it is not a Menzies' Spruce.

[What Mr. Douglas writes about the confusion between the A. Engelmanni and A. Menziesii applies to *plants in cultivation.* The English nurserymen, with their usual luck when they touch an American conifer, have mixed their seed so that now they do not know "'tother from which," and it is about *their* confusion that we write.

In nature there is no confusion. Abies Engelmanni, in Colorado, is wholly another thing from A. Menziesii in Colorado, as Mr. Douglas, who has been there and seen, truly says No one who knows the trees will confuse them for an instant. The smallest twig of A. Engelmanni is sufficient to decide it at once if you know it is from Colorado. It is more nearly allied to the Norway Spruce than to the Abies Menziesii. The letters in the English papers about their identity cannot come from any who know about what they are writing.

All of this discussion arises from a small error, and it is a new illustration of how there may be a great war about little things. It is this: There were some fine specimens about Boston from, or supposed to be from, Dr. Parry's early seed. We all thought they were A. Engelmanni. There was some mistake, perhaps, in the gardener's labelling of the seed as the plants grew; such mistakes are made. Prof. Sargent, at length, with Dr. Parry's aid, noticed these were not A. Engelmanni, but A. Menziesii. They were, however, much more beautiful than the A. Menziesii, of California, and this beauty deceived us in the young plants.

Now let us summarize the facts, so that there shall be no mistake about them:—There are two good varieties of Abies Menziesii; one inhabiting the Pacific coast, the other, and the best for horticultural purposes, Colorado; but these are in no way allied to Abies Engelmanni.—Ed. G. M.]

SCRAPS AND QUERIES.

TRITELEIA UNIFLORA.—Some of this genus is found in California, but not this species, as stated in our last. It is a native of South America.

SEEDS OF THE PERSIAN LILAC.—An old subscriber, Beverly, N. J., writes:—"I see, by the last number of the *Gardener's Monthly*, that you have never known the Persian Lilac to bear seed. Enclosed you will find a sprig taken from a bush of mine, which has borne seed for several years. The branches bearing seed-pods, this season, are chiefly low down, but last year they were mostly near the top, and some of them still remain on the bush, although, of course, they have long since burst and shed their seed."

[It was a rare treat to examine these seeds.—Ed. G. M.]

ECHINOCACTUS SIMPSONI.—Mr. Robinson, of the *Garden*, writes:—"Echinocactus Simpsoni. This colored plate (see No. 281, April 7th, 1877) was drawn for us by Mr. Noel Humphreys (an old friend of Loudon's and a long-experienced and excellent artist), in Messrs. Backhouse's nurseries, at York. We had no opportunity of comparing the plate with the living plant, but all colored drawings of many other rock plants made for us in the same garden, have been greatly admired for their artistic beauty and truth. Mr. Noel Humphreys being now abroad, we cannot refer to him about the matter, all we know is, it was drawn from nature for us, in the only place where we knew it to grow at the time."

[There is no question of Mr. Humphreys accuracy. The plant he so faithfully drew is not Echinocactus Simpsoni, and the real question is, what is the plant? Mr. Backhouse can, perhaps, tell.—Ed. G. M.]

AILANTHUS.—R. B. H., Wilmington, Del., says:—"I was looking over the last *Monthly* in which the Ailanthus is alluded to, and some doubt expressed about there being two species in this country. The staminate and pistillate trees of the Ailanthus glandulos are growing at Forest Hill, in West Chester. The pistillate bearing profusely every year huge bunches of winged fruit, that are quite ornamental. The female tree has not the disagreeable odor of the staminate one, and it does not grow so lofty, being weighed down with its fruit. Perhaps Gen. W. H. Noble alludes to the pistillate tree, when he says, 'that in Autumn they tower into grand bouquets.'"

[Our correspondent mistakes *sexes* for species.

As she justly says, both sexes exist in this country in the common Ailanthus, but are there two species, each with its two distinct sexes?—Ed. G. M.]

Bees and Clover.—M. N. B., Chicago, Ill., writes:—"I have been very much interested in your paper on fertilization by insect agency, and yet I think you put the matter too strong, for I have just been reading Mr. Darwin's recent work, and I see he does not regard insects generally as essential, but that cross fertilization is useful in the long run. My impression, after reading this note is, that you have misunderstood Mr. Darwin. His position seems to be that, when insects do not visit plants, the flowers fertilize themselves."

[We will briefly say to this that, if we have misunderstood Mr. Darwin, we are by no means alone in our misapprehension. We give below an abstract from the *American Agriculturist*, whose editor, Prof. Thurber, is not one to mistake the meaning of language. The only remark we would make is, that Mr. Darwin does not say "bumble," but *humble* bees:

"It is one of the most important late discoveries, that the yield of red clover seed depends upon the bumble bees. These insects fertilize the blossoms, conveying the pollen from one blossom to another by means of their long proboscis, and no other is known to do this necessary work. Without the bumble bees we can have no clover seed. The natural enemy of the bumble bee is the farmer's boy, who, when he tumbles over a nest, and gets stung, never forgives or forgets it, but becomes a life-long enemy to this busy bee. Give these insects a wide berth, and let them live to increase the yield and to reduce the price of clover seed, which is getting higher every year."

We are not sure that this note is from Prof. Thurber's pen, but it passes without comment, and is in accordance with much that has appeared under distinguished names there, and shows a popular apprehension of Mr. Darwin's meaning, in accordance with our own. See also the following from the *Scientific Farmer*: 'In New Zealand and Australia, the common English clover, which has been introduced, has not produced seeds in proper quantity, due, as is supposed, to the fact that there were no insects there which performed the duty of fertilization. In 1875, Mr. Frank Buckland successfully transmitted two nests of bumble bees, the insect supposed to perform this duty for the English farmer.'—Ed. G. M.]

Literature, Travels & Personal Notes.

PROTECTION FOR NEW VARIETIES.

BY EUGENE GLEN, ROCHESTER, N. Y.

Responding to your courteous invitation to write more on the subject of horticultural copyrighted names, I will at this time trespass upon your columns only to say, that when writing my recent essay, I endeavored to have it appear plainly that an extension of patents to horticulture (using the term patents in its commonly received sense) is unpracticable; that it would be attended with evils greater than any benefits that could result from it, and that I am opposed to such extension under whatever name or form it may be presented. But recent correspondence satisfies me that my ideas have been misapprehended by some, and that by such I am believed to be advocating patents under another name.

The only way in which I can account for this mistake is, that I proposed that certificates of protection should be issued through the Commissioner of Patents. I will therefore explain that under existing laws, in addition to granting patents for inventions, this officer is charged with the registration of all trade marks, and copyrights other than those relating to literature and the fine arts. To protect the public from duplication of names from different varieties of the same species, and from merely *ad captandum* or otherwise improper names, it would be important that application for protection should be passed upon by some officer before they are granted. Manifestly an examiner of the Patent Office delegated for the work would be a proper person to make these examinations.

A patent creates, during its existence, a monopoly in the production, sale and use of any

article to which it is applied. A copyright upon a name for a variety in horticulture would not secure to its owner even for one day a monopoly in the production or sale of the variety. It would simply give to him for a time, as the best measure of protection the nature of the article to be protected will admit of, the exclusive control of the *name* he may have originally adopted to indicate that variety, and hence the benefit of the reputation he may create for it *under that name.* In other words, it would prevent the public from taking from him the *benefit of his own advertising, and exhibiting of his own production*—nothing more. Surely this could not work injustice, nor could it create gigantic monopolies of which many stand in fear.

Having presented through the essay referred to an "opening" argument in favor of horticultural copyrights, and having offered to send a copy of it to any of your correspondents who feel sufficiently interested in the subject to engage in its discussion, it seems to me to be the simpler method, and I would much prefer that those who may be opposed to the measure should point out specifically the objections to which it seems open. Then, if others more competent should not take up the work, or the opponents of the measure should not present overwhelming arguments, I will be happy to make such reply as circumstances will permit, or to admit that my ground is untenable if such should be shown to be the case; or, if there be those who think the plan open to insuperable objections, and yet have not sufficient confidence in the validity of these objections to state them publicly, if they will communicate with me I will endeavor to answer their objections through your columns.

EDITORIAL NOTES.

European Notes by the Editor.—Now nearly forty years ago, and though but a boy entering on his teens, the writer of this was a careful experimenter and observer in horticulture, and was, moreover, a subscriber to, and careful reader of Harrison's *Floral Magazine* (now Shirley Hibberd's *Gardener's Magazine*), and in this he read with deep interest of the labors of a Mr. Buist, of Philadelphia, in introducing the Verbena. Verbena Buistii was figured, and accounts of V. Hendersoni, and some others by the same grower, given. How far this may in after years have induced the young lad to come to America, we cannot now say, but it was the primary cause of his settling in Philadelphia. Many a time during the thirty years that have elapsed, he felt a strong desire to visit the land of his birth, but the desire to see and to know first his adopted country, was always one strong reason for deferring that pleasant time. Having at length had the chance of visiting four-fifths of all the States in the American Union, and obtained a good general idea of its wealth and condition, he felt that he might venture to go back and tell his people of the sights and experiences of his new found land.

So, one Thursday morning in June he packed up his little trunk, and took passage on the steamer *Pennsylvania*, from Philadelphia to Liverpool, for old England. These steamers—the only American line of mail steamers in this country—are not as large as those sailing from some other ports; but for the sake of society this was found to be perhaps an advantage, for in a large lot of saloon passengers they break up into little knots or circles, each as exclusive as we often find them in ordinary society life. Our lot of seventy-five soon became acquainted with each other, and in this way found out many whom it will be a pleasure long to remember, and whom we should have never known in the "select set" system of larger bodies. As Archbishop Wood, one of our return passengers, sagely says: "It is best to learn who our neighbors are, and to think well of them from the first, for it is easier to think bad of a man after believing him good, than to correct an evil impression when once unjustly formed." A short run of nine days and a half puts us on shore again, and we fall to at once and go on with our work.

What a little place England is, and yet how powerful! This was my first day's reflection. We were all on the *Pennsylvania* in the Mersey early on one morning—almost in the north of England—and yet I took tea the same day at Ryde—about its most southern point. It was not as far as from Philadelphia to Pittsburgh, and yet we had already divided England in two! It did not seem much to be even the Queen of such a delicate little piece of ground, but when I remembered how the wide world looked whenever the British lion roared, I saw that it was brain, and not merely muscle that sent the world rolling solidly along. I think this impression of diminutiveness prevailed through almost all my experience, and yet there was an amount of

strength coupled with all this littleness that gave great weight to everything. First, the streets were generally narrower than I thought they were, as were also the country roads. I remembered how good the roads were, and I had so often read of them as models for us to imitate, that I was half ashamed of what I had said when I saw them. In a very large number of cases it is barely possible for two carriages to pass. But the road surface is always, so far as I saw, very good. But silicious stone (flint) is to be had everywhere cheap, and they have no severe frosts to heave up the road-bed, and road labor is comparatively low-priced. Why should they not have good roads? Our roads are not, as a rule, as good as those of Europe, and yet I really think we get more for our money than they do. In some counties there are no toll-gates. I thought it was universal, and remarked on that blessing to a friend while driving out in Wiltshire. "These roads are repaired by a regular parish rate. Wait," said he, "till you get into some other counties." So, when I "took a fly" from Nottingham to go to Newsted Abbey, some nine miles, I was soon met with a request for "thrippence, sir;" and before the portmonnaie was hardly closed, for "thrippence" more. I thought this was growing interesting enough as it was, but when I was soon after asked for a whole "sixpence," I had to think of my Wiltshire friend. Twenty-five cents for a nine miles' ride is almost equal to my Rocky Mountain experiences, and on which friend A. S. Fuller so loves to dwell. In these thickly settled districts it would be a disgrace if such prices did not result in good roads.

Then the native trees are smaller than I thought they were; and they are smaller, on the average, than our own forest trees. They spread out, dividing themselves into huge main branches, and have no inclination to make large, tall trunks, as ours have. But the distance round of some of these short, dumpty trunks is wonderful, and they would put many of our forest trees to shame. Stems fifteen to eighteen feet round are common, and I measured some of twenty. The commonest of all trees in England is the Elm, though, perhaps, in the forests the Oak is more common, and then, perhaps, the Ash is more commonly seen. Occasionally, only, come Beech and Linden. All these trees have shorter and stouter trunks, and more spreading heads than ours. Some of their smaller trees grow larger than their allies with us. For instance, while our common Aspen Poplar rarely grows more than forty feet, theirs would be often sixty. So would be their Alder, while ours is a mere bush; and in Richmond Park, near London, I saw Hornbeams that must be at least sixty feet high, and with trunks as large as our ordinary apple trees. Wagons and coaches were solid and strong, but there was little room in them, and one-horse carts might be seen everywhere hauling in hay. Ploughs were strong, but it was quite common to see them drawn by four horses, with a boy driving the beasts! The castles and mansions of the nobility and gentry were not as large as I thought they were, nor were the gardens and grounds of the extent I supposed. There are, of course, some places of great magnificence, but on the whole I was deceived, and I make this honest confession of my weakness because it is quite common for us all to think that things passed are better than they really were, or something different from the actual fact. I did once think we do not have the big Baldwin apples we had when we were boys, and many more things of that sort, but I am cured of it now. I can now understand how it was that Knight, in his old days, came to believe that varieties "ran out;" and when I hear some good old son of a foreign soil declare that there is nothing in America like the grand things he left behind "at home," I may sympathize with his feelings, though I may not believe his tale.

England looks beautiful to a stranger, and yet it is surprising, on analysis, to find how few are the materials that go to make up its beauty. There are few forests, but most of the hedge rows have timber in them. The trees do not seem to rob the ground on each side, as ours do, and the hedge grows good and perfect quite up to the bole, which ours will not do. We cannot have such fence row timber. Then there are the hedges themselves, mostly of Hawthorn when cared for; but of Elm, Sloe, Dog Rose and Blackberries when neglected. There is the Ivy which covers the trees, and makes even the saddest ruins look glad, and there is the Holly, that prince of trees, which justly claims a regal admiration. There is its glorious Golden Furze in Spring, and a little later the Golden Broom, and, as the Summer advances, delicately beautiful Heaths; gay Fox Gloves and gaudy Poppies, and there may be a few other simples to give a charm to field and forest; but how much is left after these? The great beauty consists in its art. In gardening it

is the Rhododendron and other contributions from America, the various Laurels and Bays of Southern Europe, the Roses of Persia, or the Conifera from Japan or our Western shores, that outline the pretty picture; and the filling in, by the way of beautiful flowers, has been gathered together from every quarter of the globe. I am anxious to impress this on the reader because there is an impression here that England owes much of its just supremacy in gardening matters to a natural fitness of things, when really nature has done but little. It is the genius of selection, the art to collect and the taste to arrange, the tact to suit foreign matters to native circumstances, that has given England the gardening fame which she everywhere enjoys. I see clearly that our weakness has been a close copying of other nations. The weakness is only natural, as our literature and all our associations are founded on theirs. We cannot have just what they have, but if we look at our own climate and conditions, and select from our materials at home and from abroad just what is adapted to us, I am satisfied that we may have gardening in as great perfection as in any country in the world.

In the first place our ideas of a garden are too large. The best gardens here are not the large ones. Places of ten to twenty acres, where besides the head gardener three to six men are kept, are very abundant, and as a rule, more artistically beautiful than the larger ones. Of course I am speaking of the rule, as I saw some large places of very great beauty. I am credibly informed that the larger places are by no means increasing, and any one looking at gardening from the grandiose point would suppose it to be declining; but I am told that these smaller places are increasing rapidly, and that not because there is any decrease in wealth, but because true gardening is more beautiful on the small than on the large scale. There were three places of this character that I visited on the Isle of Wight, all less than twenty acres, probably, and yet perfect pictures of beauty. These were St. Johns, the residence of Mr. Gasson; Appley, Mr. Clayton's; and St. Clare, the marine residence of Colonel Harcourt, of Buxted Park, Sussex. I visited also Osborne House, the marine residence of Queen Victoria, and though the grounds are on a rather larger scale than the three I have named, they come under the petite class I refer to.

Mr. Clayton's garden is under the charge of Mr. Smith, besides whom about six hands are employed. A good part of the property is cut from the main garden by a neat iron fence, and left to grow for hay, and yet the appearance of a park is given to it by trees, singly and in clumps, scattered over the surface. Thus the grass not only helps to keep down the cost of the garden, but is just the thing to give a *country* idea to the place. Only just immediately about the house is mowed, the unmowed parts being kept out of sight from the windows so far as the ground surface is concerned, but the view not in the least being checked by the design. Near the house, in its front, a steep bank suddenly descends, and below are planted numerous Oak trees, but these, when they reach the ground level, are cut off to that line, and in this way there is a long level of green leaves, adding by so much to the apparent extent of the flat surface in the front of the house. I never saw so pretty an effect obtained in this way. The huge, spreading Elms give of themselves a charm to the place, and a shady retreat in the hottest day. They are about seventy feet high, and are from twelve to thirteen feet in circumference. Many choice trees are scattered about, until we suddenly find ourselves in the garden proper, on which the chief art has been employed. I suggested to Mr. Smith that it was probably not over two acres, and was surprised to be told that it was barely over half an acre. All of this effect is obtained by throwing up the earth in some places and lowering it in others, and by judiciously carrying walks and paths around the well-planted mounds, banks and depressions. It is so arranged that every fifty feet square is totally different from the rest, and in this way there is no end to the variety but the boundary of the whole. Of course no one who is his own gardener could design or execute a piece of work like this. He might as well attempt to make his own Sunday clothes. Even the best practical gardeners, such as Mr. Smith here is, would think it beyond their province. Milnor, one of the best landscape gardeners in England, was employed especially for the work.

On Mr. Gasson's place is just such another beautiful piece of work, but of a totally different kind. It was said to be designed by a Mr. Black, of Fulham, near London, and took a long time to execute. I should not think it much over an acre; but here the artist had the advantage of a little water to work with, and he planned out a sort of rock garden. There are jets, cascades, ponds, mounds, gullies, caves, arches, arbors above ground, and cool seats below, and all so

interwoven with plants and flowers adapted to each successional scene, as to appear a part each of the other, and it affords no end of enjoyment. It seemed almost incredible that so much could be crowded into so small a space. How well this little place illustrated the progress of English gardening! When I knew it forty years ago, it was famous for its large Silver Firs, going on to a hundred feet high, as I thought then, but their nearly dead trunks now show they could have been barely seventy, (again the deceptive past!) and there were its fine Horse Chestnuts, and Portugal Laurels, Rhododendrons, and nice, shaded walks through them. There were flower beds, with box edgings and gravel walks about them, and all flowers such as these were in those days. But a garden like this! Who would have dreamed of it!

St. Clare is one of those lovely little gems which once seen, is never forgotten, and this I say not because five or six years of my own boyish life was spent on it, or because my own father, a hale, hearty man of eighty, has still charge of it, but because I know that any one who sees it will say 'tis true. Of course the climate helps it. The Winter is seldom worse than at New Orleans in our own country, while the air in Summer is always moist, and the temperature generally steady at about 70°. What plant would not enjoy a life like this? Well, there are a few dissatisfied even here, as even Lucifer tired of the joys of heaven, and there were Paulownias and others like them, still doing something, but evidently wishing for the Summer heats of the United States. I never saw Roses do anywhere, in any part of the world, like they do here, and it is not to be wondered at that year after year, in spite of the severest competition, the first premium was taken with them at the Island show. The proprietor seconds the generosity of the soil and culture, and every year new roses are added to the list. The best roses always come from the plants budded on briar stocks. Most of them are budded about on a level with the eye, giving an excellent chance to easily examine and smell them. Some of them are very old—thirty and forty years, I know—and yet are as healthy and yield as fine roses as if planted but half a dozen years ago. I measured one of these old plants. It was the Duchesse de Berri. The stem of the briar stock was six inches round. The plant had been budded about four feet from the ground about twenty-five years since. The head was four feet in diameter, though pruned back every year, and I counted *six hundred* flowers on it. Of course in a climate like this there are Myrtles, Fuchsias, New Holland Acacias, Camellias, and many other things, generally greenhouse plants, here in the open air, but few would expect to see them of such gigantic size. Fuchsia longiflora, which, with F. fulgens for the other parent, gave the birth to the present race of Hybrid Fuchsias in the person of F. St. Clare,—the original plant of F. longiflora of this hybrid, is still in the open air in the same spot it was thirty-five years or more ago, and as healthy as a willow tree.

Though in a climate so favorable one might expect to find things ranked as greenhouse plants with us in the open ground here, one can hardly avoid surprise at the grand specimens of some things. Imagine a Portugal Laurel with branches spreading over a surface one hundred feet round, and covered with millions of spikes of blossoms; a bush of the New Zealand Flax, which has been here nearly forty years, and is now a stock six feet across; a Rose with a stem eight inches round; a Hawthorne with a trunk five feet in girth; the rare Ilex latifolia (grafted on some other stock), twenty-five feet high, and covered with berries just turning red; a New Holland Acacia four feet round, and especially remarkable, a Yucca gloriosa with a trunk four and a half feet round, and with twelve huge arms, each branching into numerous small ones. These are of immense weight, and each arm has to be supported by an iron buttress, or it would split and fall away by its own weight alone. Here is, perhaps, one of the best specimens of that beautiful Californian pine, Pinus insignis, in cultivation. I had no means just then of getting its exact height, but it is certainly fifty feet, while it measured eight feet round the trunk a foot or so from the ground. It is a good illustration of the fact often mentioned in the *Gardener's Monthly*, that trees grow much more rapidly than people generally suppose. As a boy I assisted at the planting of this tree, then in a six-inch flower pot, just thirty-four years ago the past Spring. Here are also other evidences that plants do not take long to grow. There is a Blood Beech over forty feet, Cedars of Lebanon fifty feet, and many other things about these heights, and all planted within thirty years. The chief attraction in these beautiful grounds is the continuously varying sets of flower gardens, all so differently arranged, and each among such differing surroundings, that continuous variety is well

provided for. Over thirty thousand plants for bedding purposes have to be propagated each year, yet by judiciously employing frames as the stocks are rooted, it is not so hard a task as it seems.

Fairmount Park, Philadelphia.—A hasty drive through this park in the middle of August showed that this public garden was improving rapidly on the past. Of course much that was done in the building of Horticultural Hall, and in the arrangements for the collections of exhibitors, could not be done in accordance with the strictness of gardening. The building, for instance, had to be very ornate in order to attract for the special occasion, and to be so arranged as to accommodate huge crowds of people rather than to make room for crowds of plants; so with beds and walks. It is cheaper to retain these and to build up from what has been done, than to start wholly anew, and those of us who are disposed to criticize according to standard rules of taste, must remember these things. Then we must not forget how many masters there are to please in an American public park, and just what sort of masters many of these are.

Knowing the difficulties of the situation, all must award great praise to Mr. C. H. Miller, who for the past year has had the direction of the ornamentation of the park. He may in time be able to satisfy a critical taste; for the present he has undoubtedly gained the good will of the mass of the people who have in thousands enjoyed the gorgeous display during the season, and who are made to feel that in these public expenditures they are getting a fair return, and which they have rarely had before.

The Nursery Business.—The nursery trade is said to be somewhat depressed over the United States, but judging by the beautiful set of descriptive catalogues now before us, issued by Ellwanger & Barry, of Rochester, they are encouraged to push business, and this is a good sign. We have little doubt but the worst is over for the nursery trade, and that good times will soon come again.

Floral Decorations at Parties in France.—While in Paris recently, the wife of the French President gave a party, in which the floral features were literally *grand*. In a newspaper paragraph the next day we noted that nearly *five thousand* pot plants had been used by the decorator. The grounds of the *Palais d'Elysee* form an oblong square, surrounded by a wall so high, and with an iron railing on top, that they are strictly private, even in this public city; but the rich ivy which flows over, and the magnificent trees which will not stay "private," show that there is some garden love behind the walls.

Swindles in Horticulture.—The *Prairie Farmer* observes: "The persons generally gulled by swindling advertisements, however, are those who seldom read newspapers of any kind; or, if so, only those of the trashy sort. This class is easily fooled by the special circulars, sent out by swindling firms." We like this, because it has always been our answer to correspondents who urge us to "go for" this or that. When a man buys a "strawberry" which is to grow as big as an apple tree, and to require ladders to pick the fruit, it is surely a waste of space and time to any of *our* readers to say that such things are not to be. *If* there be any of our readers who for themselves desire such information, we will always cheerfully attend to such queries in our regular departments.

Æsculus Californica.—Buillon, in his admirable *Dictionare de Botanique*, of which parts to the letter C have now been published, says that the Californian Horse Chestnut constitutes the chief part of the *approvisionnements* of the Sioux Indians. It may be of some tribes, but scarcely of the Sioux. Can any of our readers tell us whether this species extends into the Sioux territory. It seems to be too tender for this part of the United States (Philadelphia).

The Horse Chestnut for Rheumatism.—Last year we met an American-born fellow-citizen with Horse Chestnuts in his pocket, which he said he carried as a safeguard against rheumatism! We had not known of such a reputation before, and supposed the idea originated on this continent. But Buillon says that the oil from the nuts is used with advantage against gout and rheumatism, which shows the same idea prevalent in France. We further find that in China the seeds of their species (*Æsculus turbinata*), is used to prevent muscular contraction in severe cases of rheumatism. If all these experiences come from distinct observations, and each without any knowledge of what the other has found, it may be that there may be more than mere imagination in the chestnut being a rheumatic cure. Have any of our readers had any reliable experience with it? For we suppose the knowledge of its powers must be wider than we knew.

MARENGO (ILLS.) NURSERYMEN.—The *Commercial Advertiser* speaks well of the prosperity of the Marengo nurserymen, and names Messrs. Peck, Woodard, Rogers, Gilkerson, and Prescott, and Norris & Vasey as especially entitled to praise.

R. R. SCOTT.—The death of R. Robinson Scott, briefly referred to in our last, deserves more than a passing notice. He was a native of Belfast, in the north of Ireland, and he numbers among his relatives and kinsfolk some of the leading citizens of that city. He received a first-class education, and in the knowledge of ancient and modern languages he particularly excelled. Indeed, in every branch of learning he had few superiors. He was in very early life fond of flowers, and he determined to devote his life to botany and horticulture. He went through a course of studies in these branches at the Botanic Garden of Glasneven, near Dublin, from whence, under the patronage of Dr. Mitten, a celebrated Irish botanist, he was advanced to Kew, in England. Before he had been there many months, he was acquainted with every plant in that large collection, and the botanical relations of entirely unknown plants would be at once recognized by him. Those who knew him well, looked forward to a career for him of the highest usefulness to his fellows. Unfortunately, amidst all this brilliant promise, there was a sort of chivalric recklessness, which indicated an unbalanced mind, and which was deemed eccentric, and interfered with the efforts of his friends for his advancement. On the breaking out of Smith O'Brien's rebellion, he abandoned all his botanical studies, and took an active part in the struggle. An oration on "What has England done for Ireland," delivered to an excited throng of some thousands, and in the poetic language of which he was so complete a master, was pronounced one of the most wonderful pieces of oratory of the time. It was the more remarkable as coming from one hardly out of his teens, and of so small a stature and juvenile appearance as to appear much younger than he really was. On the conclusion of the rebellion he came to Philadelphia, and resumed the profession of horticulture, and in spite of his numerous eccentricities, made many friends by his wonderful knowledge, his industry and energy, and indeed by his many virtues, for his faults were always on the side of what he imagined to be duty and right. He discovered and described a new American Fern, *Asplenium ebenoides*, which is yet a source of great interest to botanists. In keeping with his other eccentricities, to the surprise of all his friends, who knew he had not one dollar in his pocket, and no prospects of getting one, he started the *Florist*, a monthly magazine with very expensive colored plates, the first number of which appeared on the 1st of of May, 1852. It was a greater surprise how near that venture became a complete success. Eventually the eccentricities made enemies faster than friends; the mind which guided it, in some respects naturally weak, gave way under its labors; and he had to take refuge in an asylum. The Philadelphia *Florist* lived three years, and any one can see by a reference to its pages, that had its editor been as gifted physically as he was mentally—had intellect and body been better matched—there would never have been occasion for any other horticultural paper in America to this day. The later years of his life fluctuated between his malady and occasional periods when he could work at his profession. His death at Harrisburg has been already recorded. It is often said there is but a hair between life and death; and one may as truly say there is as narrow a line between a fame almost undying, and an utter blank. This much must be said for our friend, that if he failed to make his mark on humanity's illustrated page, it was by no fault of his own. What faculties his Maker gave him, he used to the fullest extent that he knew how, and in very many instances to the pleasure and profit of his fellow-men.

He leaves a wife and two children—a son and daughter.

DEATH OF T. T. MATHER.—A Montgomery Co., Pa., correspondent sends us the following extract from his local paper: "On Thursday morning last, Thomas T. Mather died at his residence in Cheltenham. He had been suffering from cancer of the throat for several months, but was well enough to be about and attend to his business. The immediate cause of his death was hemorrhage. He was a director of the Jenkintown National Bank, and was an upright, public-spirited man. He died in the 64th year of his age,"—and very justly adds: "Mr. Mather was well known for his endeavors to advance fruit culture. He was always an exhibitor at all shows within reach, never repining, indeed he probably never thought that he may not sometimes have had justice done him. He was working for the public good, and not merely in justice to self. The Mather Pear is named for him."

MUSIC.—From S. Brainerd & Sons, Cleveland, Ohio, we have a selection of sacred songs selected from Bliss, Murray and others, arranged in one volume, entitled "Heavenward."

MR. RODERICK CAMPBELL.—We are pleased to notice by an Utica paper, that so well pleased were the trustees of Forest Hill Cemetery with the horticultural services of Mr. Roderick Campbell, that in addition to his salary, they presented him with a check for $200.

MR. A. M. ENGLE ON EARLY PEACHES.—Mr. Engle writes us that he is overburdened with correspondence about his early peaches. To save this correspondence, he has sent us "all he knows," and we shall have pleasure in publishing the statement next month.

SCRAPS AND QUERIES.

"60" SIZED POTS.—Mr. E. Lonsdale, Germantown, Pa., writes: "'One interested' will find the answer to his question (see page 239 August number), relative to "60 pots," in the *Garden*, page 52, No. 295, Vol. XII, by Mr. John Saul himself, where he has written on the same subject, as noted in the *Monthly*, viz: Tabernæmontana camassa, in which he says, 'Small plants in 3-*inch pots* will produce flowers freely.' It seems strange he should be so explicit where it is less necessary, for in England pots are frequently called 60, 48 and 32 sized pots, and so on, as the case may be. It is an absurd practice in any country, for it seems much easier, and certainly more proper, to designate a flower pot in inches, when it is readily understood by whomsoever reads."

MR. DARWIN'S FAMILY.—A correspondent sends us the following piece of harmless gossip, which he says he found in a London paper: "Mr. Darwin has, during his whole life, been in easy circumstances, above the toil of earning an income. Unlike many philosophers, he has not had the mortification of spending his best hours in the drudgery of official routine, or the hardly less wearisome task of teaching. He has been enabled to devote his entire time to his favorite pursuits, and since his marriage with his cousin, Miss Emma Wedgwood, has resided at Down, amid the rich and varied scenery of one of the prettiest parts of Kent. As his numerous family has grown up around him he has been relieved of all the cares which distract the scientific worker in the heat and turmoil of active life. He leads a truly calm and philosophic existence, unvexed by the contemplation of weekly bills and the signing of checks. In his wife and family he is especially happy, being spared the pain of degenerate offspring. His eldest son, Mr. William Darwin, is a banker at Southampton; the second, George, took high honors at Cambridge, and is now a Fellow of Trinity; the third, Frank, who has inherited his father's ill health, acts as his secretary; the fourth, Leonard, is an officer in the artillery, and distinguished himself as one of the scientific corps sent to observe the transit of Venus; the fifth, Horace, is an excellent mathematician. One married and one unmarried daughter complete a family whose constant care is to relieve its head of all possible trouble or anxiety."

PRICES OF NURSERY PLANTS AND FLOWERS.—A correspondent calls attention to a paper by Mr. Henderson, in which he shows that except in a few standard stocks, the prices of trees and plants rule lower in America than they do in Europe. Mr. H.'s letter has been republished in so many places, that most of our readers have probably seen it, and we need not quote; but we may say that we endorse all he says.

HORTICULTURAL SOCIETIES.

COMMUNICATIONS.

KANSAS STATE HORTICULTURAL SOCIETY.

BY H. E. VAN DEMAN, GENEVA, KAN.

At Abilene, on the Smoky Hill River, on the 6th and 7th of June, 1877, this Society met for the pleasure and instruction of its members, and of the community. This is a live institution. It would be entirely out of place here to repeat much of what was said, but may be some of the readers of the *Monthly* would like to hear from us. Verbal reports from delegates from different parts of the State were encouraging as to the fruit crop. Hedges and stone fences are fast superseding the rail and board fence. Thousands of miles of Osage Orange hedge are set every year, and on the increase. Shelter belts and groves or forests are also increasing. The tree act of Congress, I am happy to say in contradiction of what I reported two years ago, is proving of great benefit to the settler and the State. Any one who will plant 40 acres of forest trees 12 feet apart, within four years on the vacant Government land, can have 160 acres. Many are availing themselves of the privilege. The kinds set are principally elm, ash, box elder, honey locust, soft maple, black walnut, cottonwood and osage orange. This last named tree, whoever has control does not permit as lawful upon a timber claim. It is one of the most durable of woods, and the restrictions are greatly regretted by the settlers. We have found that shelter belts should be upon the *south* of the orchards to obstruct the sweep of the Summer winds instead of north, as first planted, to ward off the Winter

winds. These do not prove damaging as supposed, except to live stock. The wind upon the prairie whips and bruises the foliage of tender shrubs, trees and smaller plants. Any fast growing annual like hemp or castor bean, or even corn, is a great help until more durable protection can be grown.

The whole matter of a recommended fruit list was referred to the Experimental Committee of the Society, of which I may some time tell you. This old fashion of grinding over and over and out a fruit list in the meetings we have abandoned in disgust. It takes too much time, and is too unreliable. There is a better way.

The wild trees, shrubs, and flowers of Kansas were talked about. We have a rich supply of such kinds as deserve cultivation. Among the smaller ones are the Verbena, several species of Violet, Anemone, Tradescantia, and Mimosa. The wild prairie rose, the Cephalanthus or button bush, are two very good native plants. Our Elms and Box Elder or Negundo are better than the far-fetched exotics.

The ladies attend our meetings too. We were highly entertained by an essay on "Woman's Work in Horticulture," by Miss Mary L. Macy, of Hannibal, Mo., the essence of which is "plain living and high culture." The next meeting of the Society will be held at Parsons, in the Neosho Valley, in December next. All are invited, welcomed, and freely entertained.

EDITORIAL NOTES.

THE NURSERYMAN'S PROTECTIVE ASSOCIATION.—This organization, which has been in existence several years, has increased its area for memberships, now embracing the whole country. Started at first as a Western organization, its growth has been more rapid than anticipated, till now it throws its protecting arms over all, and its memberships embrace the leading men in the trade throughout the North, besides a number of memberships in the South. It aims to do no man an injury, but simply to point out the rocks and shoals in the great business sea, to associate members, that they may steer clear and profit by the experience of others. Character is worth something to all men, in whatever business calling, and to none is it worth more than to the nurseryman and dealer; but many there are, all over the land, who, regardless of the injury done, will take advantage of both buyer and seller for pecuniary gain when they can, and from the depredations of this class, all in the trade must more or less share their blame. To protect one another, as the name indicates, is the object of the Association; and so long as the same vigilance over memberships is exercised in the future, as has been in the past, so long will members regard the Association and its Reports, as now, a most valuable assistance in their trade.—*Industrial Gazette.*

THE AMERICAN ASSOCIATION OF NURSERYMEN.—The leading object of this Association, to wit: "The purchase and sale of surplus stock," is not shown in the book of its published transactions. Unlike other associations of horticulturists, the Annual Meeting is, especially a "Trade Sale" meeting, where buyer and seller meet to compare views, and make their engagements for the demands of their trade. Started only two years ago, it has already held two meetings in the West, with unabated interest, and next year it will hold its annual meeting in Rochester, N. Y., when it is hoped its memberships will be largely increased. All in the trade, whether nurserymen, florists or dealers, should avail themselves of the advantages afforded at these annual gatherings. In addition to the buying and selling of stock, there are the questions of freight, grading of stock, methods of packing, &c., &c., to be discussed, and great good will flow to all in the trade.—*Industrial Gazette.*

THE WORK OF GROUP XXXVI. OF THE CENTENNIAL JURY.—This group embraced fruits, fruit trees, fruit models, legumes, vegetables, and allied matters. As already stated, the work of this jury was continuous from May to November, always taking two and generally four days a week. Many *thousands* of exhibits were examined—the legumes alone being over a thousand—and reports on the actual merits of each in most cases, made to the commissioners. Wherever special merit was found awards were made, and the particular points of special merit stated in the award. The Centennial Commission intends to publish these awards, and as the reasons will thus be given to the world, much more honor will accrue to the individuals who receive them, than the mere announcement would as under the old system, that "so and so" was "awarded a medal," without any special reason being given. The proof sheets of these awards have recently come under the eye of the writer, and it appears that 216 persons received awards for special excellencies. As this is perhaps not ten per cent. of the exhibits made, those who receive the awards may well be proud of their honors.

SCRAPS AND QUERIES.

MUSIC AT HORTICULTURAL EXHIBITIONS.—A correspondent refers to the annoyance from music at some shows—interfering with the conversation and study of the articles on exhibition. We think the majority of people like the music; and we are sorry to say, many horticulturists do not take as much interest in these exhibits as they ought to do. It is possible to so have an exhibition that the public shall be entirely satisfied with the horticultural products alone; but when not, the managers must be excused if they look to other arts besides that of gardening, to give the public the full worth of their money. Nothing would gratify us more than to see horticulture alone command entire attention, and we hope that day will come.

THE

GARDENER'S MONTHLY
AND
HORTICULTURIST.

DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

Edited by THOMAS MEEHAN.

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FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

FLOWER GARDEN AND PLEASURE GROUND.—Again we may call attention to the necessity of having colored maps for the bedding plants of next year, so that due preparation of the plants during Winter may be made. In our country we may use many hardy things very effectually which will not make so much demand on greenhouse and greenhouse care during Winter. Very beautiful effects may be made by massing shrubs, and these will not cost much. The defect in most of our gardening experiences is that the cost exceeds anticipation. Many of our gardens are too large. See at this season how the garden may be cut down so as to make the balance more beautiful.

One great want of American gardening is good roads in Winter. It is next to impossible to have them of gravel or other material without great expense. In many surburban places it is now customary not to spend much on foot paths, filling up with sand or any light material which will make good walking for ordinary weather; and to depend on board walks, or permanent paved ways for wet times.

In few things in American gardening has there been so much improvement as in lawn-making. Sodding or laying turf is now only used for bordering or where an immediate effect is wanted. Sowing is generally practiced. The grass seed may be sown in October. Green grass (Blue of Kentucky) is the best. A little rye may be sown with it in Fall, but not in Spring. Its use is to make a little shade to keep the young plants from thawing out. It can be mowed at once next year, but must not be mowed close, one inch the first year is enough. Weeds are often troublesome in a newly seeded lawn, but if the green grass is not cut too close, in two or three years it will crowd out most of the weeds.

There is probably no branch of gardening more pleasing than that which embraces hardy bulbs. They come into flower so early, and grow with so little care, that every one may grow them at a small cost. Of those which may be planted this month are Hyacinths, Tulips, Crocus, Narcissus, Japan Lilies, Anemones, Ranunculus, Crown Imperials, Snowdrops —among the better known varieties. All of these prefer a soil that is rich and not dry, but by no means a wet soil. The Tulip, Anemone and Ranunculus will do better in a dryer soil than the others; but the two last do not do well where the sun will shine directly on them when in flower. In planting these in the flower beds, it is well to set them so that Spring planted flowers for Summer bedding can go between them. Where some loose litter can be had, it may be used to cover the bulb-ground with. It prevents thawing of the soil till the warm Spring rain comes; and we presume our readers know that it is the repeated thawings which "draw" the roots of things out in the late Winter months, and leave them bare to the sun, and to their great injury.

Many kinds of hardy annuals flower much

better next Spring, when sown at this season of the year. A warm, rich border should be chosen, and the seed put in at once. Early in Spring they must be transplanted to the desired position in the flower bed.

Many persons complain that they cannot get the Pansy to produce flowers as handsome as they see them represented in seedmen's plates; but it is because they are not sown early enough. If not already done, sow them at once,—if they can have the protection of a cold frame all the better. These cold frames are very useful in small flower gardens. There are many little things pretty hardy, but which are much better with this protection. Many people have much difficulty in keeping over choice kinds of roses, such as Teas, Chinas and Bourbons. But if these are lifted from the ground early in October and set thickly in a cold frame, they can generally be kept very well. It is not so much the degree of frost which injures them, as it is the drying influence of the frost; and the frame aids in the prevention of evaporation. We know of a rose-grower who keeps the tenderest of roses in pots in a house without any fire, though the temperature outside goes below zero, and the roses are frozen solid most of the Winter. But he waters as regularly as through the Summer, as the frost dries so. He finds even the tenderest to get through the Winter in this house as well as if there were no frost.

Summer flower bulbs must be taken up at once for Winter protection. A cellar, secure from frost, is the best place. Here Caladiums, Tuberoses, Gladiolus, Tritomas, Dahlias, Tigridias and similar things, which do not like frost, may be preserved. The Pampas-grass may also be kept in a cellar, if fitted into a tub or large pot, and not kept too warm or wet. Usually they will keep out of doors if dry leaves be put thickly over them, and a box put over to keep the leaves dry; but many were lost in this way last Winter.

We cannot have the English Ivy to any great extent in the Northern States, but the Japan creeping Euonymus is a good substitute. It creeps over walls, trees and fences just as ivy does, and seems hardy very far north. We give an illustration of it in Science Department of this number. The kind in culture is chiefly variegated with white; but for those who prefer the full green, it very often kindly throws out the original green-leaved condition.

COMMUNICATIONS.

NEW TUBEROUS BEGONIAS.

BY DANIEL BARKER, NORFOLK, VA.

This new and beautiful race of Begonias is destined to occupy a very prominent place in ornamental gardening (by what we may judge of the plants set out in some of our city gardens) as much so as the Zonale Geraniums at the present day. We find some of them eminently adapted for planting out in a partially shaded place, and for the decoration of the greenhouse, conservatory or parlor windows, as when cultivated in pots they make superb specimens, it being not unusual to have single plants from two to three feet through and three feet high covered with blossoms, which they produce in extravagant profusion throughout the Summer and Autumn months.

The following new and beautiful varieties, with their profuse flowering quality and magnificent foliage, are selected from a large collection raised at our establishment this season:

The Bride.—A magnificent variety, flowers opening a pure white, foliage a dark velvety green, very effectual.

No. 2. Large flowers of a beautiful bright canary-yellow foliage, finely variegated, a charming variety.

No. 3. Foliage beautifully mottled with dark green, producing flowers of a rich salmon tint, which are produced in extravagant profusion, a beautiful variety.

No. 4. A superb variety, producing, in the greatest profusion, flowers of a rich deep magenta, extremely showy.

No. 5. Intense orange-scarlet flowers, very elegant and distinct.

No. 6. A very attractive variety, flowers large, of a beautiful rosy salmon which are produced in the greatest profusion, a charming variety.

A NEW LATE FLOWERING MAGNOLIA.

BY SAMUEL PARSONS, FLUSHING, N. Y.

In the *Gardener's Monthly* for July, an interesting notice was given of Magnolia Halleana and Thurberi, comparatively new varieties that were brought from Japan fifteen years since by Dr. Hall, propagated by Parsons & Co., and thus inherited by the present firms of kindred names. The hardiness of these Magnolias is unquestion-

able and unsurpassed, having been tested these many years by the various nurseries of Flushing, and by hundreds of persons in all parts of the country to whom they have been sold. It is gratifying to learn that so valuable a variety as Magnolia Thurberi can bloom, since never before, to our knowledge, has a single flower appeared in America. In all probability, mature age is necessary, in this case, to produce wood suitable for flowering.

My main object, however, is to call attention to another variety, or perhaps, species, Magnolia Hypoleuca, which deserves consideration, not only for beauty, but extreme rarity, never having been offered for sale in America, nor as far as I know, in Europe. The merit of this variety lies chiefly in the great beauty of its milk-white flowers, which resemble those of Conspicua, and possess a delicious banana-like odor, surpassing that of any other hardy Magnolia. Bright and attractive in foliage, the under side of the leaf is greenish-white, whence the name. Hypoleuca is quite hardy, having been grown a dozen years or more in New York City by Mr. Thomas Hogg. The bloom appears about the middle of June. Specimens of the flowers were exhibited by Mr. Hogg at the June exhibition of the New York Horticultural Society. The firm of S. B. Parsons & Sons are in exclusive possession of a considerable stock of this variety and will soon offer it for sale. They have other new and valuable Magnolias from Japan, obtained through the enterprise of Mr. Hogg, which they propose, as soon as propagated in sufficient quantities, to describe and offer to the trade. All Magnolias are so beautiful and valuable, that any real addition to the list of good kinds should be very interesting to the horticultural public.

PÆONIA BROWNII.

BY W. C. L. DREW, EL DORADO, CAL.

One of the most strikingly handsome plants growing in California in a wild state, is the one whose name heads this article.

I saw it for the first time this Spring, and was immediately taken with its great beauty, and have no doubt that when brought into market it will be found one of the most desirable of novelties.

Pæonia Brownii is, like all other Pæonies, a perennial, the top dying down in Winter and new shoots coming up from the root every Spring. It grows about one foot high.

The one to two ternately compound leaves are of a very thick, leathery nature, the leaflets are ternately and pinnately lobed or divided. The leaves are glaucous beneath, and either glaucous or glabrous above.

The petals of the flower are from five to ten in number, they vary in size, in color they are a dark red, the centre of each petal being almost black, the edges shading clearer red; they are very thick. The sepals are about the same size as the petals and vary from a pure green to a bronze green in color.

The flowers are from one to two inches in diameter, and are always found drooping downwards.

The follicles or seed-pods are very large, often an inch and over long, of a green color and from two to five in number; these, surrounded as they are by the numerous yellow stamens, give an additional beauty to the flower.

Pæonia Brownii, though enduring a great range of station and climate, is never met with in large numbers, a dozen, perhaps, will be found together, and then you might go for fifty miles and not find another. That it will do well in any locality is evident from how it grows wild, being found on the hot plains of Los Angeles and San Diego, and also near the limits of perpetual snow on the Sierra Nevadas. It shows no preference for wet or dry soil, blooming equally well in both.

One of our rarest natives, and one which cultivation will change wonderfully.

EDITORIAL NOTES.

New Cemetery at Toledo, O.—One hundred and sixty acres near this beautiful city has been secured for a cemetery on the "lawn plan," that is, no fences or divisions between lots but surveyors' marks. The plan adopted has been drawn by Swagerl & Co., of Philadelphia, one of the members of which is Mr. H. J. Swartzman, well-known in connection with Fairmount Park and the Horticultural Hall of the Centennial Exhibition.

Roses in Winter.—The Tea and China roses are too tender for some parts of the Union to leave out unprotected in the Winter season.

Perhaps the best way to preserve them is to lift them out before the Winter sets in, cut away the unripe parts, set them all in thickly on the side of a sloping piece of ground, where the water will run away, and cover with earth all the plant, root and branch. If one has not a sloping piece of ground, make a little hillock so that the water will drain away. This refers to any half hardy plant that has moderately firm wood, pomegranates or crape myrtles for instance.

THE MOCASSIN FLOWER.—They say in England that we shall soon have none of this beautiful flower in our woods. Some vandal has been scouring the country and sending roots there by the wagon load, selling them by auction for "what they will fetch," which was about a penny apiece, hardly enough to pay freight. Perhaps such vandalism will cure itself.

MADEMOISELLE MARIE FINGER ROSE.—This was noticed favorably in our columns last year. It has been thought identical with Mademoiselle Eugenie Verdier, but it is now said to be a darker Rose, and may be distinguished by being more spiny than Miss Verdier.

HARDY BULBS.—The following are very beautiful, yet seldom met with:

Allium molle, Anthericum Liliago, Arum Dracunculus, Bulbocodium vernum, Fritillaria Meleagris, Leucojum æstivum, Scilla amana, Scilla campanulata, Scilla Frazeri, Triteleia uniflora, Tulipa sylvestris.

DISTINCT PHLOXES.—So many of the new ones resemble the old, that it is difficult to name distinct kinds. But, on a recent visit to Miller & Hayes, August Riviere and Eugene Verdier were really novel in shade and beautiful, and will please all lovers of hardy Phloxes who may not already have them.

THE COLORADO MENZIES SPRUCE.—It has been suggested by English nurserymen that the fine form of Abies Menziesii which grows in Colorado, should be called Abies Menziesii Parryana. We do not see the necessity of these long Latin names for mere varieties, and should think that Colorado Menzies Spruce would be quite sufficient, and certainly more expressive. This is what Mr. Sargent called it, who was the first to point out in public the difference, and should by all horticultural courtesy be allowed to give his own name, without having it burdened with hosts of synonyms.

NEW OR RARE PLANTS.

IMPROVED FOX GLOVE.—The Fox Glove, after having bloomed and kept itself true in English woods and fence corners for thousands of years, has been "broken" by the florists into innumerable varieties. At St. Clare the writer of this saw many of these new forms. Mr. Vietch reports that there are even hybrids said to be raised between it and the Gloxinia, but this report may have arisen because of one variety having been named "Gloxiniæflora."

CALLIRRHOE MACRORRHIZE.—The Callirrhoes are among the most beautiful of our hardy wild flowers, and are much appreciated in English gardens. They belong to the Mallow family, and have flowers of various vermilion shades. A white variety of the one above noted has appeared in English gardens, of which Mr. Thompson thus speaks in the *London Garden*:

No white form of any species of this favorite genus of Malvaceous plants has hitherto been discovered; the present introduction has, therefore, some claim to notice on the score of novelty, apart from its intrinsic merits, which are considerable. It is of very neat habit of growth, producing from a tap root, which ultimately attains some size, an erect stem from 1½ ft. to 2½ ft. high, which bears a corymbose raceme of pure white flowers, on long, naked foot-stalks, articulated near the summit, the corolla being rather more than an inch across, and the calyx without the involucral leaflets, which occur in some other species of this genus. The foliage, mostly radical, is cordate in form, with crenate margins and long-stalked. The plant appears to occur in several shades of color, varying from rosy-purple to pale rose and white. Sown early, it will bloom the first year. It is a native of the Southwestern United States.

HYBRID AQUILEGIA CHRYSANTHA.—When the Yellow Columbine was first introduced, we advised our readers to take it in hand and hybridize it with the older races, and thus introduce a new breed. We have not heard that any one has adopted this suggestion, but an English gentleman has, and raised some beautiful things. He will, probably, get "lots of money." It is strange that the proverbial sharp "Yankee" lets these chances slip.

IDESIA POLYCARPA.—We have before spoken of this new Japan tree. A plant was imported for the Centennial collection in Fairmount Park,

for the completion of which no expense was spared, but it arrived dead. It may, perhaps, be in the collections of other enterprising American tree lovers, but we have not heard of it. To draw attention again to it, we give the following, which has recently appeared in the *Garden:*

We have received from Mr. John Luscombe, of Combe Royal, South Devon, a very beautiful specimen of a tree which is likely to prove a very desirable addition to our gardens. This is Idesia polycarpa, a Japanese tree, which was not known to science until 1866, when it was described by the Russian botanist Maximowicz, who met with it in cultivation at Nipon and Yedo, in Japan, and ascertained that it was a native of the island Kiusiu, at the foot of a mountain called Hikosan. Mr. Luscombe describes it as a handsome tree-like spreading shrub, with fine foliage; but, according to Professor Maximowicz, it attained in Japan the dimensions of a large tree. The leaves in the specimen before us are irregularly serrate, acuminate, very slightly cordate at the base, the larger ones about 6 in. across, bright green above, whitish or almost glaucous beneath, with five prominent branching nerves, which are reddish towards the base; the leaves are borne on red petioles about their own length. The flowers are diœcious; the males, which Mr. Luscombe has sent us, have from four to six yellowish-green spreading sepals, and an indefinite number of pale green filaments with orange anthers. Each blossom is about ½ in. across; they form long, gracefully-drooping, branched racemes, springing from the axils of the upper leaves. The female flowers are similar in appearance, but are succeeded by very numerous orange berries, which appear, from dried specimens communicated by the discoverer to the British Museum Herbarium, to be about as large as a small Cherry. The flowers are deliciously fragrant, their odor resembling that of a Vanda; and although their coloring is not brilliant, their effect, combined with the red leaf-stalks, the varying green of the leaves, and their elegant drooping habit is extremely pleasing. The tree belongs to the Order Bixineæ (or Flacourtiaceæ), to which our gardens have not hitherto been largely indebted. It was named by M. Maximowicz in commemoration of a Dutch traveler named Ides, who was sent to China by Peter the Great at the beginning of the last century, and who subsequently published an account of his travels.

Pinus Omorika—a new Coniferæ. — The discovery of a new Conifer in Europe is as interesting as unexpected. It inhabits the mountains of those "unhappy" countries, Servia, Bosnia, and Montenegro, and Dr. Paucie is the botanist who, after much consideration and research, and after taking the opinion of the late A. Braun, K. Koch, and others, has described it as a new species under the name of Pinus Omorika. It belongs to the Abies section, and is most nearly allied to P. orientalis. Omorika is the Servian name of this tree, which Dr. Paucie describes as being of gigantic stature, equalling, if not exceeding, the loftiest of its European congeners. It is of slender habit, with relatively short branches forming a pyramidal crown; bark of the trunk brown-red, peeling off, the fragments often heaped up in great quantity around the base of the trunk. The lower branches pendent, with the extremities only directed upwards. Needles (leaves) of a silver-gray hue, small and short (about 5 lines long), usually obtuse; cones oval-oblong, 2 inches long, at first erect, gradually assuming a horizontal position, and finally pendent; when young of a beautiful violet color, when mature reddish-brown, with an intermixture of ash-gray. Scales of a roundish shape, faintly striated, and equally toothed in the upper part. The foregoing particulars are from a lengthy article by Carl Bolle, in the Berlin Horticultural Society's *Journal.* Dr. Reichenbach contributes some notes on the same subject to the *Botanische Zeitung*, n. s., 1877, from which it appears this tree —"whether species, variety, or climatic form"— is known by the name Omorika from the Adriatic to the Danube; and it is supposed that it was formerly more widely dispersed than appears to be the case at present. This is founded on the assumption that, because the name is so widely understood, the tree yields a valuable timber. Grisebach regards it as a variety of P. orientalis, but, whether distinct or not, it is none the less interesting, and another illustration of the distribution of Coniferæs as exemplified by the cedars, &c.—*Gar. Chronicle.*

Ceanothus integerrimus.—The mountains about the Yosemite,abound in this beautiful lilac-looking shrub. Imagine, if possible, dear reader, that you are on a road cut in the mountain side, with a thousand feet of the mountain below, and quite as much above you, and all this, as far as the eye can reach, almost literally

covered with white lilac bushes, and all in full bloom, and you will have something of an idea of what we saw and enjoyed one day, when to relieve the tired and over-burdened horses, we climbed four miles of mountain road. Dr. Kellogg writes us of this beautiful plant: "The young twigs have the odor and flavor of the spicy black Birch of the Eastern States. One acre of upland well stocked with the Birch is sought after by shrewd dairymen as equal to three of common lowland for the cattle to browse on when the low pasture dries up. Though it does not increase the quantity of milk, it adds 10 to 16 per cent. to the butter—most invaluable for stock when a very dry season occurs, or during severe Winters. The bark of the root is becoming celebrated for various diseases, chronic derangement of the liver from miasma, obstinate diarrhœa, etc. The Mountain Birch abounds in the Yosemite and many or most parts of the middle Sierra Nevada Mountains."—*James Vick.*

Lilium Thunbergianum van Houttei.—The most brilliant of all the dark colored varieties of Thunbergianum. This very new variety, introduced from Japan last Spring for the first time, belongs to the finest of this class and is undoubtedly the pearl of the dark colored sorts. In every respect it is worthy of the name of the celebrated horticulturist, whose death is mourned by the whole horticultural world. The flowers are very large and of good form, bright dark brown, the veins still darker shaded, and with blackish dots. It is fully surpassing the much-esteemed Atrosanguineum grandiflorum and Atrosanguineum maculatum, by its better shaped flowers of brighter color and its more vigorous growth. The plant reaches 0,3 meter in height and bears two or three flowers. Probably it will flower more abundantly when it becomes acclimated in these regions. Without being injured by it the flowers endure the strongest sunbeams. We may with full confidence recommend this magnificent Lily to every amateur of flowers.—*Krelage.*

SCRAPS AND QUERIES.

Hardy Yellow Rose.—"Hardy Rose," Detroit, Mich., asks:—"Is there such a thing as a perfectly hardy Yellow Rose? I am told that in some Eastern gardens there is such a plant. Would it be hardy here? You see my doubt is as to a Yellow Rose hardy enough for our cold Winters." [This, no doubt, refers to the Yellow Briar. It is a golden yellow, with leaves somewhat of the form of the Sweet Briar. It is perfectly hardy, and is one of the most desirable of flowering shrubs.—Ed. G. M.]

Propagating Tree Pæonys.—A. F. B.,Tarboro, Mass. These are grafted on the roots of the herbaceous ones. Half ripe wood of the tree Pæony is used, and after grafting on the roots, are put into a slight bottom heat. If the wood is not too mature, they unite readily.

Silver Thorn.—This (Elæagnus parvifolius) has been tried extensively as a hedge plant by a correspondent who dates from Hagerstown, and who writes enthusiastically of the results of his experiment.

Green House and House Gardening.

SEASONABLE HINTS.

We hope that those who want window plants that will grow easily, will not forget what we recently said about Amaryllis. As we are writing this, a lady sends us a plant for name that "blooms in her window, without any trouble, every year," and it proves to be the Vallota purpurea, which is the next thing to an Amaryllis. Then for Spring there is the Amaryllis formosissima, which can be had easily at any bulb store, and should be planted now. See cut on page 295.

Lily bulbs are generally planted in the open ground, but bulbs for flowering in pots should be placed at once. Four or five-inch pots are suitable. One Hyacinth and about three Tulips

are sufficient for each. After potting, plunge the pots over their rims in sand under the greenhouse stage, letting them remain there until the pots have become well filled with roots, before bringing them on to the shelves to force.



AMARYLLIS FORMOSISSIMA.

The taste for cut flowers is considerably increasing, and one of the greatest demands on a greenhouse in Winter, is from the better half of the head of the household for room and table decorations. Beautiful specimen plants are not so highly valued as those which will afford plenty of bloom for cutting. The various kinds of Zonale Geraniums are very good for this purpose. The following also comprise very useful plants for this purpose: Bouvardia leiantha, Calla Ethiopica, Cestrum aurantiacum, Habrothamnus elegans, Chorozema varium, Chinese Primroses, especially the double white, Daphne Indica, Poinsetta pulcherrima, Euphorbia splendens, Heliotrope, Mignonette, Sweet allyssum, Catalonian Jasmine, Yellow Jasmine, Mahernia odorata, Stevia serrata, Violets, Roses, Cinerarias, and Brompton stocks. Tuberoses that flower late may be carefully taken up and potted, and will last till over Christmas; and many things may be taken out of the ground and slightly forced. The common white Lily is good for this purpose; also Deutzias, Philadelphuses, and Tamarix. The common green Euonymus japonicus, is also worth potting to make a lively green for mixing with other things.

There are but few things in the greenhouse that will require special treatment at this time. Camellias and Azaleas, as they cease to grow, will require less water; but it is now so well known that moisture is favorable to growth, and comparative dryness favorable to flowering, that we need do no more than refer to the fact.

The various kinds of Begonias have either been of late years added to by importations of new species, or improved by hybridization, that they make excellent winter-flowering greenhouse plants. The new tuberous rooted ones, however, of which the old Evansiana is a well-known type, are Summer flowerers, and will come in wonderfully for bedding, we believe.

COMMUNICATIONS.

GYMNOSTACHYUM VERSCHAFFELTI.

BY MANSFIELD MILTON, CLEVELAND, OHIO.

A South American Acanthad with leaves of great beauty. The stems and leaf-stalks are of a reddish color; the leaves opposite, about four inches long and two in breadth. The upper surface of the leaves is smooth, of a fine soft green; the midrib and veinlets of a deep crimson, giving it a beautiful and attractive appearance. The plant is of a dwarf trailing habit, of easy culture, requiring a good strong heat to produce its true colorings. A light, leafy soil is the most suitable, and is best shown when grown in flat pans or baskets; it requires abundance of moisture when growing. During Summer, it should have an airy place to grow where a high temperature cannot be afforded it during Winter, by making it hardier and better able to endure the cool temperature. It is well adapted for culture in fern cases, and looks well associated with such plants as ferns. It is often seen under the name of Fittonia Verschaffelti.

MEDINILLA MAGNIFICA.

BY MR. WM. FALCONER, CAMBRIDGE, MASS.

This is a candidate with the Bougainvillæas for being the most gorgeous of our cultivated tropical plants. It has very large shining deep green opposite leaves that, of themselves, are quite ornamental, and a wealth of pendulous racemes of showy pink inflorescence, these racemes often being thirty inches long. It likes heat, moisture, a little shade, and a place near the glass. It blooms from the previous year's wood, every joint and end of shoot yielding a raceme. We have a plant here some six feet through, that had forty-two racemes this year, twenty-three of which were in full bloom at once, last March. It commenced blooming in

February, and continued in beauty till early in May. Last year this same plant began blooming in March and continued, more or less, in flower till November, which prolongation of season was caused by the previous year's irregularly ripened wood; therefore when the wood is thoroughly ripened we get a magnificent show concentrated, which is the preferable way. We grow our Medinillas in turfy loam and a little peat leaf soil and rough sand, and water them heavily in Summer, and moderately in Winter. Thrips are fond of the leaves, and mealy bugs are persistently partial to the flowers, and without a rigid riddance of these pests satisfaction cannot be had.

MAIDEN HAIR FERN FOR BOUQUETS.

BY MR. E. LONSDALE, GERMANTOWN, PHILA.

Referring to the extract from the *Garden* on this subject, and your remarks thereon in the July number of the *Monthly*, I would say that the Adiantum cuneatum is the kind mostly grown for bouquets, and not the A. capillis veneris. The former kind has an arched and graceful frond, and is a much better kind for the purpose than the latter, besides producing fronds in greater profusion.

The reason why ferns are not so much used here as in Europe is, because Smilax, though perhaps not quite so pretty, answers the purpose very well, and is much more easily and cheaply grown.

A SUMMER GARDEN BOUQUET.

BY W. E. M., GERMANTOWN, PHILA.

A very pretty and tasty bouquet for Summer time may be made of scarlet Geranium, Begonia Weltoniensis, or some other pink flower, Catalonian Jasmine, Browallia elata, blue, and a few fern leaves. The first two varieties should be used for "base flowers," the next two for "projecting" and the ferns for "edging."

In making the bouquet, alternate the scarlet Geranium and Begonia. It is immaterial that these flowers be packed together, as the Browallia and Catalonian Jasmine will make the bouquet light and graceful. These two should be cut from the plants with long stems, as the buds are almost as pretty as the flowers. They should be projected about three inches above the other blossoms. There should be about twice as much Jasmine as Browallia, as a very little blue will make a much greater effect than the same quantity of white.

Edge the bouquet with some light and graceful fern leaves, and a gratifying result will follow.

A round top nosegay is preferable to any other style, when made as above described, because the projecting flowers show with greater effect.

EDITORIAL NOTES.

ROOF GARDENING IN CHICAGO.—Potter Palmer's hotel, in Chicago, is said to have a beautiful roof garden. It is to be hoped the example will prove "catching." We have urged, for years, the extension of this excellent practice.

THE OLD DOUBLE CHINESE PRIMROSE.—In spite of the double kinds, which late years have brought for us from seed, there are none so double, or in every way so good, as the old double white kind, which has to be propagated by a division of the stock. The florists all rejoice in it. It requires a cool place to be kept over the Summer in. About this time it commences to grow, and should be gently re-potted. It is one of those things that likes to be kept high in the pot, and then frequently watered. When there is room for a great deal of water, by being set deep in the pot there is great danger of its getting too much; then the leaves turn yellow, or the plant dies.

THE PAPYRUS AS A GARDEN PLANT.—The Egyptian Papyrus, the plant from which the ancients made their paper, is a kind of sedge grass, and grows naturally in the Nile regions. In our earlier gardening days we grew it in tubs of water in greenhouses; and it grew very well. Recently, in a visit to the pretty nurseries of Miller & Hayes, of Germantown, we saw it growing beautifully as a dry border plant—a new illustration of a fact pointed out by ourselves some time ago, that it is not because plants love water, that nature often makes them grow therein.

ARTIFICIAL COLORED FLOWERS.—These are now common in cemetery and parlor work. It is

said in English papers that some of the powders in use are poisonous, and that the bunches should be delicately handled.

Preserve Old Geraniums.—The old plants of Geraniums growing in flower beds are often left out to die, young cuttings being taken for the beds for next year. But old plants make very fine objects. If taken up, tied in bunches with a little moss in about the roots, and hung in a cellar, they will live over Winter. There is moisture enough in the succulent stems to keep them alive, unless the cellar is very dry indeed. No doubt many of the hardier half succulent plants might be kept in this way. Nor must the cellar be too warm, or the plants will sprout.



IXORA REGINA.

The Ixora.—While in England, recently, the writer was struck with the value set on the Ixora as a pot plant. They formed specimens of great beauty. Williams, of Holloway, depended largely on them for show plants, and had numerous

beautiful varieties. So at Mr. Bull's were many beautiful ones, some of them quite new. We are indebted to him for the plate on the preceding page, which we found one of the best in his collection; it is called Ixora Regina. The color is a violet salmon. Ixora crocata is one of the oldest and best known.

Curious Effects of Grafting Coleuses.—Late last Summer I grafted certain kinds of Coleus, the most remarkable of which is Duchess of Edinburgh, grafted with Brilliant de Vaise and Golden Gem. I kept them during the Winter partially at rest, and in February I potted them and started them into growth on a gentle bottom heat. As soon as they had made fresh leaves I found that Brilliant de Vaise had inoculated the stock, the leaves on one shoot above and one below the graft having become spotted and mottled with dull yellow and reddish brown, with an occasional flake or two of the magenta rose-color of Duchess of Edinburgh, while Golden Gem, on the same plant, remains unaffected. Some time back I removed the top of the stock which grew very vigorously, some leaves being wholly green, others dark velvety crimson edged with green, and mottled and blotched with yellow and dull reddish-brown. Up to the present time this plant has not altered. Of the next two breaks which I took off and struck as one would cuttings, one is almost the same as Duchess of Edinburgh, with spots of yellow here and there, and some of the leaves are very beautiful, being pink, cream-color, and light green; this is the prettiest shoot, but the slowest grower. The other is dark crimson edged with green, and very much mottled with amber; this is now becoming very attractive. I also grafted C. Brilliant de Vaise on C. elegans, which has a yellowish-green ground heavily netted and veined with bluish-crimson. This was also inoculated, the leaves of the stock turning quite green. I also grafted others, on one of which I put five varieties, using C. Emile Chaté for the stock, and the following for grafts, viz.:—C Merrimac, Lady Burrel, Duchess of Edinburgh, ruber, and Beauty of Widmore, but as yet no change has taken place; they all exhibit equal strength except the last, and that is on the centre shoot of the stock. I find that Duchess of Edinburgh, with its many and varied hues of color, comes much brighter, and retains its leaves much longer if grafted upon C. Souvenir de Lierval.—*R. H. B., in Gardener's Magazine.*

NEW OR RARE PLANTS.

Double Flowered Cinerarias.—After many attempts, extending over almost half a century, the well-known Cineraria has been produced double. They were not very fine, however, in the estimation of some cultivators, but we hear that improvements have been made which another season will leave little to be desired by the most fastidious.

New Violet—*Belle de Chatenay.*—This is the latest novelty in Violets. It is not here yet, but was raised in France, and has been advertised in England. It is said to be sweet, pure white, double, and to measure one inch across.

Torenia Fourneri.—Mr. Buist sends us a plant in bloom of this beautiful new Torenia. The old T. Asiatica has been popular and long will continue to be, but this will divide the honors. The light portion is pure white in this, and there is besides an orange spot.

SCRAPS AND QUERIES.

Propagating the Calla Lily.—Miss M., Brooklyn, desires "to know whether there is not some more rapid way of increasing Callas than by dividing the plant. In three years I have only been able to divide it twice, and I want more to give to some friends." [When dried in the Summer, as nurserymen dry them, in order to get them to flower in the Winter, a large number of very small bulblets are produced, and in this way a hundred may be had in three years.—Ed. G. M.]

Convolvulus Mauritanicus.—Mrs. J., Monroe, Mo., sends this for name with the following note:—"Can the *Gardener's Monthly* tell me the name of the enclosed? A spray from a trailer that has sprung up in a hanging-basket, containing Lysimachia nummularia and a lilac Maurandia. It has leaves like the former, in shape, but woolly and of a bluer green; the flower a silvery lavender color, and like a miniature Convolvulus. Grows prolifically."

Tabernæmontana.—Mrs. R. B. E. will find an article on its culture from one of our correspondents. If any further information is desired, please send us another line.

FRUIT AND VEGETABLE GARDENING.

SEASONABLE HINTS.

Lettuces sown last month will now be large enough to set out for permanent growth. A common hot-bed frame, set on a bed of leaves or spent stable manure, will enable one to enjoy delicious salad all through the latter part of Winter, where sufficient protection against severe frosts can be secured. In this division of our hints, it is more of an object to preserve them through the Winter for the purpose of setting out in the open air in Spring. In the States this can be readily effected by their being set out in the open ground in a sheltered place. Here in Pennsylvania they often do very well by having the ground thrown into ridges about six inches deep, running east and west, and the plants set out on the northern sides. They have a little straw thrown over them in severe weather, and get through the Winter admirably, heading early in Spring. The Early York Cabbage is extensively grown the same way. Where the climate is too severe to allow of this, they must be put under cover of shutters, as before described in our hints.

Cabbages can be preserved in such a cellar, though most prefer them in the open air. One way is to pack them closely together with their roots uppermost, and then cover them with soil, on which straw or litter is thrown to keep them from freezing. By being packed this way, the water cannot get into the hearts, which is one of the chief causes of their rotting. Where plenty of boards can be had, they may be packed with their heads uppermost, and the rain kept off by the material.

Brocoli and Endive may be taken up with balls of earth, and set in cool cellars closely together, and they will grow sufficiently—the former to produce good head, and the latter to blanch beautifully all through the Winter.

Asparagus beds should be cleaned, by having the old stems cut off and the soils from the alleyways dug out and thrown over beds. It keeps the frost from the roots, and thus permits them to grow and lay up matter all Winter for next Spring's growth. Very early in Spring the soil should be raked back into the alleys, so as to leave the roots but a few inches under the soil, as the nearer they are then to the sun's rays the earlier will the crop be.

Celery must have continued attention to prevent the soil from entering the heart. Where very fine results are desired, the plants should be protected from early severe frosts, so as to enable the plants to grow without injury as long as possible.

Roots of most kinds, such as Carrots, Beets, etc., should be taken up before the frost is severe. They all keep best packed in sand in the open air, but it is too inconvenient to get at them in Winter; hence cellars are employed to preserve them in. Cellars for this purpose should be cool, say with a temperature of about 45°, and not all dry. It is not meant that it should be damp, as the roots will become rotten, but it must be moist enough to prevent shriveling.

However, if any protection can be given so as to enable one to get at the pit in frosty weather, most things keep better so than in any other way. Celery keeps very well packed in earth, so that the frost does not get at it; but it must be laid with the tops sloping, so that the water may be kept out of the heart.

Apples and Pears do well planted in Fall. In our colder climates the stone fruits do best in Spring; but if the young twigs are cut back almost anything may be set out now. In cutting back shorten the weak shoots, not the strong ones. Trees will do very well in any good garden or field ground, without very expensive subsoiling or great preparations, *provided* they are well surface manured, and rank weeds are kept cut down and not allowed to grow among or near the trees.

In gathering fruits they must of course not be bruised, or they will rot; and for the same reason any worm-injured fruits should be separated from the sound ones.

In keeping fruit one must be governed by his conveniences as to how best to do. He has only to remember that if the place where they are

placed is warm, they will not keep well, and if too cold the flavor is injured. If too dry the fruit withers; if too damp they rot. With this in mind, he will only have to experiment a little to see what is *his* best place to keep fruits.

COMMUNICATIONS.

THE NEW EARLY PEACHES.

BY H. M. ENGLE, MARIETTA, PA.

It is not a great while since the Early York was the principal early Peach. From the advent of Hale's Early dates a new era in peach culture. Ripening two weeks in advance of Early York, equal in quality, and nearly so in size, it was rapidly disseminated, and for a time was one of the leading market peaches. No sooner was it fairly introduced than it showed a tendency almost everywhere to rot on the tree, and now is almost entirely discarded.

The Early Beatrice, a seedling originated by Thomas Rivers, of England, made the next sensation among peach growers, as it ripens about two weeks in advance of Hale's. It was quite extensively planted in Delaware, and in the South. New varieties of more recent introduction, however, have cast it into the shade, as they appear to be fully as early, of larger size and better quality. These embrace Alexander, Amsden, Downing, Saunders, Wilder, Musser, Cumberland, Honeywell, and one from Frederick, Md., and another from Gettysburg, Pa., both the latter being not yet named. These are, no doubt, all seedlings of Hale's, and except Wilder, I will predict will not vary much in time of ripening when fairly tested. We may also reasonably expect that other new seedlings of the same class will follow.

With all this array of new candidates for first honors, the time has gone by for five dollar early peach trees, or even three dollars, unless this new generation of early kinds will produce seedlings that will make another leap of two weeks in advance of their parents. Such a result may not be impossible, but there must be a limit somewhere. All these new kinds, I believe, are accidental seedlings, except Wilder, Saunders, and Downing. These I raised from seeds, the peaches of which I fruited under glass, and fertilized them with pollen of Apricot, with the expectation of producing hybrids that would be earlier than any peaches. The result is, peaches as early, if not earlier than any now introduced.

Having seen or tasted the new kinds all but a few, I am satisfied that in appearance and quality they will prove as near identical as in time of ripening, and that none are superior in quality to well-ripened Hale's.

I am well aware of the freaks that peaches ofttimes make. That the time of ripening of different kinds in different sections, soils or latitudes, is sometimes reversed. Therefore, in order to be positive, they must be tested in different sections of country.

The results of my observations may help to decide this apparently knotty question. We have now all the above kinds growing except the unnamed ones. Downing, Saunders, Cumberland, and Musser, have not fruited except on the original trees. Wilder fruited last season under glass side by side with Alexander, and ripened two to three days later. This season they fruited side by side in open ground, and Wilder ripened a few days earlier. These were on young trees planted at the same time, and was their first fruiting. Downing, on the original tree, ripened a week earlier. Musser bore its first fruit last season, was shown at the Centennial, and received the credit as best of eight early kinds. This season it ripened its fruit within a few days of Downing. Cumberland ripened its first fruit two years ago, and one specimen measured 7½ inches in circumference. Last season it bore a full crop, but in size ranging with Alexander and Saunders, but ripened its first specimens about three days before Downing. It was not reported at the Centennial in consequence of delay. I am of the opinion that the Cumberland will prove one of the very earliest of the new early kinds. This season it had no fruit, the buds being winter-killed. I have my apprehensions that some, at least, of these new early peaches, may incline to rot like Hale's, although mine have thus far shown no unusual rot. Alexander, Amsden, Musser, Cumberland, and Honeywell show in foliage and habit of growth a similarity to Hale's. Wilder is one of the strongest growers on our grounds, and resembles Hale's less than those just named. Downing and Saunders show some mildew on the foliage in nursery rows, but as they get age they show very little—some seasons none. I expect, in a year or two, to report fully how all these varieties behave side by side on our own

grounds, which I hope will be of interest to peach growers generally. What is now wanted is a reliable peach to fill the gap which Hale's leaves open. The Wilder, I expect, to fill it partially, being a week earlier than Hale's.

NOTES ON EARLY AND OTHER FRUITS.

BY J. J. BLACKWELL, TITUSVILLE, N. J.

The Alexander Peach, &c. We have an Alexander peach tree third Summer from the bud, two years transplanted next Spring, that has ripened five peaches fully ripe the twentieth of July; fruit medium-sized, well colored, and adheres to the stone. This is a promising variety here for the amateur, and possibly for the orchardist, if it will ripen before the Mountain Rose gets in market from Delaware. It is useless to grow any other variety here to go in market with the Mountain Rose. Last year this peach sold in Trenton market for one dollar and a half per basket, while Troth's Early were a drug at fifty cents.

Early Louise I think a very fine peach for the amateur; good bearer and extra quality, but too small to compete in the market. Early Rivers is a poor bearer, and rots badly. We have one tree in very rich ground, and think it not worth growing here unless there is much improvement in it. Early Beatrice ripened earlier than Alexander, but may not on trees of the same age.

The Primate Apple is now the most promising variety of early apples that we have. I saw specimens of the Hoover Apple at the Centennial Exhibition, and should be pleased to know if it is worthy of cultivation, and if so, where it can be obtained.

PEEN-TO, OR FLAT PEACH OF CHINA.

BY MR. P. J. BERKMANS, AUGUSTA, GA.

In the April number of the *Gardener's Monthly* I referred to this peculiar variety, which, although in my collection for a number of years, had heretofore failed to produce fruit. Some two years ago I gave a friend residing in Pensacola, Florida, trees of the most promising of my varieties, and to-day, June 23d, he sends me a box of the fruit with the following note:

"At the time we received the trees you stated that they would not answer for Georgia. I can assure you that here they are a perfect success, and just the Peach for this climate. The samples I send you were taken from one tree, from which we have plucked twelve hundred peaches."

As this is the first instance of the Peach having fruited in the United States, it may be interesting to California and Florida fruit growers to know more about it. I add the description of the fruit. Size, from 2 to 2½ inches in diameter; shape, irregularly round, and very much flattened; 1½ inches thick on one side and 1 inch on the other; a deep furrow starts on the thinnest side from the stem and ends on the apex, where a deep hollow is formed, having in the centre a deep, narrow calycinal cavity; skin greenish yellow washed with carmine, and a deeper cheek on one side; flesh white, exceedingly fine in texture, juicy and melting, and with a delicate almond flavor; clingstone; quality very good; pit quite flat; tree a very rapid grower, of open habit; holds its leaves later than any other variety.

EDITORIAL NOTES.

THE BEST APPLE IN THE WORLD.—A writer in the *London Gardener's Magazine* thus boldly advances to battle:—"Cox's Orange Pippin is the finest Apple in the world. This declaration is made in full conviction both of the responsibility it carries, and of its value to all who are interested in the subject of apple culture. Fortunately the variety is neither scarce nor dear. Its merits are well-known, and indeed they are so conspicuous that, in common with other good things, it is always speaking for itself, and hence it is everywhere largely propagated and extensively planted, and is on the way to take the lead in the apple garden, and prove to all that our declaration in its favor is warranted by the facts. It is one of the best paying Apples in Kent, and it is one of the few that may be trusted for a crop in those damp alluvial valleys or 'bottoms,' where Spring frosts make the most havoc, and fruit growing is a precarious business."

Now we have no sort of objection to this if the "world" intended is the little English world; but if he intends to challenge the great American continent he had better beware. Have we no friends in Israel to come out and fight this Philistine?

THE RELIANCE RASPBERRY.—During the Centennial Exhibition, Mr. A. L. Felten exhibited a



THE RELIANCE RASPBERRY.

Seedling Raspberry which seemed to have some good points, and received therefor, commendation in the Centennial weekly reports. It is somewhat like the Philadelphia. There have been many raised of this character, but none so far have equalled their parent. The full value of this variety can only be known by seeing it as it grows in the field or garden, and what it is really worth will have to be spoken of in that connection. But so far as any one can judge from the fruit, it will probably be a good competitior with that well-known variety. For the illustration we are indebted to Messrs. Gibson & Bennett, of Woodbury, N. J.

Tea in California.—The newspapers are trying to induce attempts at Tea culture in California. It is found by experience that Asiatic trees do not do so well on the Pacific as on the Atlantic coast of our country. It does very well in the older Southern States, but they cannot compete with low Chinese labor. We fear that until the wages of the Chinese tea laborer in China is nearly equal to the wages of the American farm laborer, we shall have little success in American tea raising.

Smith's Improved Gooseberry.—This variety of the native race, which we noted several years ago in our pages, is not yet much known, but is growing in favor with Western growers.

The Liberian Coffee.—This, so superior in size and quality to the kinds now grown, and thought to be free from disease, has given up the last claim, according to recent English papers.

Killing Grasshoppers.—A. G. Chandler, of Leavenworth, Kansas, says that grasshoppers can be kept under pretty well by driving them into ditches and destroying them, but that it is too expensive. It takes twenty-five men for every five acres, to do it effectually.

Alexander, Honeywell and Amsden Peaches.—Mr. Charles Downing in *Colman's Rural World*, corrects a misapprehension that he said these were the same. He says they are all different, but that they are for practical purposes very nearly alike. It is an important distinction, as they may not always come so nearly alike as they did on his grounds; different circumstances of soil, seasons or climate, often operate on one variety in one place, when another will be still constant.

The Concord Grape.—Concord grapes weighing two pounds, are not to be despised. Mr. N. Blanchard of Stoughton, New Hampshire, has no difficulty in producing them. There has been some curiosity to get his manner of treatment, and, according to the *Massachusetts Ploughman*, this is it:—"On a favorable soil, but in an exposed locality, he has ripened, year after year, on each of his well grown vines, from twenty to twenty-five pounds of grapes, in clusters weighing from sixteen to thirty ounces each. He grows no small clusters, and using only ground bone, ashes, and plaster of Paris, as fertilizers, spread broadcast on his land, his vines continue perfectly healthy. His success depends upon no local advantages which may not be found in almost every garden or farm. His method is as simple as it is successful. His ground was prepared as if for corn. In rows running north and south, good layers are set eight feet apart. The roots are carefully covered about four inches deep; the surface of the ground kept level and free from weeds by a light cultivator, or otherwise. The work of the first two years is to grow good strong, healthy roots. To this end, a single cane is grown and tied to a stake, pinching off the end if it grows too tall and slim. After the leaves fall, cut this to the ground, leaving only one or two buds, from the better of which to grow a similar one the second year. This is to be treated in the same manner, except that in the Fall it is to be cut eighteen inches from the ground.

"The third year, a trellis running north and south, should be erected, the lower rail or wire twenty inches from the ground, with two above, nine inches apart. No. 15 galvanized wire is the best for this. From the two upper buds on the cane, grow two shoots in opposite directions on the lower wire, pinching off the ends when they have grown four feet. These are to be permanent arms, never allowed to grow longer; but on these arms allow laterals to grow ten or twelve inches apart; tying them to the upper wires but pinching them back occasionally to make them grow stout. They should not grow much above the upper wire. If shoots should come out of these, they should be pinched off in the same way. At the end of the season there will be two strong arms, each four feet long, with eight or ten laterals bearing good strong fruit buds. After the leaves fall, prune the laterals, leaving only two buds on each, with the auxiliary or arm bud at the junction.

"In the Spring, when the buds start, save the arm bud and the better one, on each lateral, rub-

bing off the other. Let the arm bud bear only one cluster of grapes, the other two. When these shoots have made three leaves beyond the blossoms, pinch off the last leaf and the blossoms, except the three clusters above named, always saving the best clusters. They should now be tied to the second wire. When three more leaves are pushed out, pinch off two of them; do the same if shoots come out of these.

"This is to be continued through the season, allowing the laterals to grow to the upper wire. Pinch out everything else that starts from the vine. In the Fall there will be two laterals and three good clusters of grapes at each joint of the arms. The vines should always be kept in this shape, with no longer arms, no more laterals, and no more clusters of grapes. It is all the roots will bear and continue healthy."

THWACK AND TURNER RASPBERRIES.—At a recent meeting of the Pike County (Mo.) Horticultural Society, these two Raspberries were in competition, and the Society decided in favor of the former.

The Thwack has proved to be a favorite with the large growers in Ohio this year.

A WORM IN A CUCUMBER.—The papers are prophesying that the "days of the Cucumber are over," because Professor Leidy of the Academy of Natural Sciences found a bad intestinal worm in one of these. For the same reason one might not eat apples, or many other things, for similar things have been found in all. People must "look before they eat" in every thing.

THE MONTMORENCI CHERRY.—Mr. Mumma, of Dayton, says the large Montmorenci in that vicinity proves to be sixty days earlier than Early Richmond.

A KANSAS VINEYARD.—F. M. Fleischer, of Topeka, has a vineyard of 20,000 plants in bearing. The steel blue bud borer is his worst enemy. They work when the vines are pushing. He goes over each vine, and with a sudden jar, they fall into sheets as in curculio catching.

THE SHROPSHIRE DAMSON PLUM.—This is said to be quite popular in Central and Southern Ohio, and to be in some respects superior to the common Damson. In the Cincinnati markets there are few plums but Damsons to be seen, but these are abundant.

SALAD FOR EARLY SPRING.—There are few things more desirable in early Spring than Lettuce. It likes cool weather, and does not mind it quite cold if it is not too much exposed to light in the Winter season. Frames with board shutters make capital places to shelter them. The frames need be but a few inches high. Every little garden might at least have a few square feet so covered. The cabbage lettuces are considered good for Winter work, and September a good month to sow, or even October in warmer regions.

MUSHROOM GROWING.—We hope those of our readers who have cellars or places where a temperature of about 60° may be regularly maintained during Winter, will not neglect to try to raise Mushrooms, for the culture of which our back volumes contain complete instruction. Now is the time to think about preparing the beds or boxes if there is no room for complete beds. In this connection the following hint of information from the *Gardeners' Record*, will be valuable:

"It may interest those of our readers who cultivate Mushrooms artificially, to learn that they may increase the size of these much esteemed edible fungi without in any way deteriorating their quality by watering their beds from time to time with a solution of saltpetre, beds thus treated having produced Mushrooms weighing as much as seven pounds ten oz. each."

WHOLE OR CUT SETS IN POTATO PLANTING.—Discussions still go on in the agricultural papers as to the relative advantage of whole or cut sets. It is not a question of sets. It is one of the eye. A strong eye is better than a weak eye. It does not matter whether the eye is on a cut set or a whole potato. A weak eye makes a weak plant, a strong eye a strong one.

STEEPING SEEDS IN CHLORINE AND CAMPHORATED WATER.—Experiments at Cornell are reported as showing, beet seeds so steeped showed the line in three days, those not steeped did not appear till some time after. The result is proposed to show the value of chlorine as a steep. But we think it likely that a soak in pure water would have hastened the germination just as well.

NEW FRUITS.

CAPTAIN JACK STRAWBERRY.—This variety, raised by Mr. Samuel Miller, of Missouri, we hear well spoken of everywhere. It is said to be near Albany Seedling in many of its good qualities, with some superior advantages.

Gregg Raspberry.—This is a new Black Cap, which excited attention at the Centennial exhibition last year. Mr. N. Ohmer, of Dayton, excellent authority, believes it will supersede the Mammoth Cluster, which so far has been the leading Black Cap.

Lee's Black Currant.—A Toronto paper says:—"Messrs. Leslie & Son have sent us a fruiting branch of this new and from all appearances valuable variety of fruit. The branch throughout its entire length is thickly hung with currants that will average half an inch in diameter. Many of the finest of them are three-quarters of an inch through. The flavor is excellent and the skin of the fruit remarkably thin." The Black Currant has not been popular in the United States; if it were, the fine black Utah varieties would be in demand. They are larger and yet quite as good in flavor as the European Black Currants. They are varieties of the "Missouri" Currant.

The Pioneer Strawberry is a new variety, and said to be peculiarly an early one.

SCRAPS AND QUERIES.

A Good Early Pear.—A Penn. correspondent writes that for three years past he has had the Julienne and the Manning's Elizabeth growing side by side, and that the former proves slightly astringent. It is not so good a Pear as the latter, but a few days earlier.

Early Peaches in Texas.—A correspondent from Austin, writes:—This year the Early Beatrice first ripened on the 26th of May, and the Early Louise and Rivers a few days later; some of both being mature before the last to ripen of the Early Beatrice. Here the Early Rivers is a very fine peach, large and delicious. We had a wet spell about the time of the ripening of Hale's Early, and they rotted mostly, so much so that if I did not think the trees would do better next year I would cut them all down. In my orchard I have a succession of ripe peaches from the last of May to the middle and last of November. I generally eat freely of peaches, cream and sugar, twice a day and find them remarkably healthy. Our Apricots and Nectarines are also very fine, the curculio not having found my orchard.

What is a Fruit?—A correspondent inquires whether in an agricultural exhibition a Tomato would be classed among fruits or vegetables? Botanically of course a Tomato is a fruit, but in horticulture we class those things as "fruits" only, which secrete sugar when ripe. The Tomato must go with vegetables.

NATURAL HISTORY AND SCIENCE.

COMMUNICATIONS.

TUMBLE WEED.

BY MR. E. HALL, PROF. BEAL AND REV. L. J. TEMPLIN.

Mr. Hall says:—"Seeing by the July *Monthly* that the botanists are getting involved in the Tumble Weed controversy (as per S. Watson), you may say to your readers that Mr. Weir's Tumble Weed is the Cycloloma platyphyllum, Moq., and behaves just as he so graphically describes in the June number, in the Sandy River counties of this State, growing abundantly in the farmers' fields in those sections.

"Amaranthus albus is also a splendid tumbler and is known to all prairie men, but seldom growing so abundantly in any one locality as to fill all the fence corners, and then go on tumbling over them as the Cycloloma does.

"Artemisia dracunculoides, D. C., is also a good Tumble Weed in Southern Missouri and Kansas, as per a shop-keeper in Humboldt, Kan., to whom I applied for information as to the plant when it was new to me,—'Tumble Weed!! curious anybody don't know Tumble Weed.' And there are others."

Rev. L. J. Templin says:—"I see several suggestions in the *Gardener's Monthly* as to the real name of the Tumble Weed; some of them may be correct and some are certainly wrong. We have two species here, of which I hope to send you specimens as soon as they bloom."

Prof. Beal writes:—"You speak of Tumble Weed. Amaranthus albus, does sometimes tumble in some parts of this State, when grown on early dry land. At least I think it is the species. Prof. Bessey, of Ames, Iowa, of the Agricultural College, says, their Tumble Weed is Amaranthus albus. Weeds as well as many other plants, and animals often behave quite differently in remote countries. I never saw this weed rolling about in Massachusetts or New York, but I have seen small specimens drifting for some distance in Southern Michigan, never, however, until within a year. This was in Battle Creek."

And somebody from Rockford, without signature, says:—"Amaranthus albus is the common 'Tumble Weed' of Illinois! Cycloloma shares the name, but is comparatively rare, being confined to the sandy banks of rivers.

As there are so many "Tumble Weeds," would it not be well to provide each with adjectives, and avoid the trouble that will otherwise occur?

EDITORIAL NOTES.

Geography of the Colorado Potato Beetle.—While the writer of this was in England, hope was expressed by English farmers that their country would not be warm enough in Summer to encourage the beetle. But on the contrary, Prof. C. V. Riley has recently stated that it does not like high Summer heats, and that the Southern States of our own country will for that reason never be overburdened with the pest. Unfortunately the potato does best in the temperate regions, where the Colorado beetle doth best love to feed.

Euonymus radicans.—In our last year's volume Mr. Boehmer contributed a highly interesting paper on the Flora of Japan, and our readers may remember that a reference was made to the Euonymus radicans as being one of the most remarkable features of forest scenery; clinging to the trees and covering them with verdure, as the ivy does the walls and trees of old England. We have had the variegated variety of this under culture for a year or two, but had noticed no disposition to send out roots in this way, and feared the wrong species was being grown. But we placed one against a tree to test it and find it does run in that way when it can get anything to cling to, and is undoubtedly the kind referred to by our friend in his Japan forest sketches. As the English ivy is not generally hardy in our country, and this so far proves to stand any of our severe Winters, we think it likely to be of immense value in American gardening. It will grow as a bush if desired, when it does not root out as when it



EUONYMUS RADICANS.

finds something to cling to, and it makes admirable edgings for flower beds, or it can be used in the place of box and trimmed in close. Considering the time it has been in American nurseries, it is surprising that no one has made a point of calling public attention to its manifold uses in American gardening. It will be a fit companion to the beautiful Ampelopsis Vietchii also from Japan, with the additional advantage of being evergreen.

Wearing out of Varieties.—In recent discussions on this subject, it was contended that varieties do not wear out, but that they disappear or get feeble in time from disease following the grafts or cuttings from which the plants are made. But to the practical gardener this is the same thing. If the variety die out in time, it is not of much consequence, whether it is from disease, or from a constitutional giving out, for disease is nature's plan for destroying constitutions.

Spontaneous Generation.—Prof. Tyndall, on being asked, recently, whether he thought the

lowest forms of animal or vegetable life could be "spontaneously" generated from inorganic matter, said he had not made up his mind whether it could be or not. He was simply waiting for the proof that it could, before believing in it.

Reproduction in Plants.—Mr. Byron G. Halsted contributes a good paper to the *Scientific Farmer*, showing the difference between sexual (seeds) and asexual (cuttings, etc.) reproduction. He takes the ground that the latter is defective because it cannot secure cross-fertilization, *i. e.*, "varieties will run out."

Trees will not last forever.—The preservation of our forests is a good idea, yet it must not be forgotten that trees will not last forever, and American trees do not last as long as trees growing in Europe. It is far more important to look after the planting of new forests. The *New England Homestead* notices that the famous great elm of West Springfield, which Dr. Holland in his history of Massachusetts, says is one of the largest in New England, is destined to go the way of all things very soon. About one-third of it broke off last week, and shows that the whole is much decayed.

Heating Cities by Steam.—A very novel and at the same time interesting experiment, according to the Lockport (N. Y.) papers, is soon to be attempted in that city by Mr. Holly, the successful water-works pump inventor. This experiment is to heat the whole city with steam, after the same manner as it is lighted with gas. Unfortunately, the entire programme is not published, as it would no doubt be interesting reading. It is not thought feasible to have one boiler do the job, but the city is to be divided into districts, and each district is to have its separate boiler. Mains from each boiler are to run to the different houses, and all the occupant has to do is to turn on a faucet and obtain all the heat he wants.

Preparing Vegetable Tissue.— Hansteim's method of rendering vegetable tissues transparent as described in his *Botanische Abhandlungen*, heft i., p. 5., is very simple. He employed it especially in his investigations on the development of the embryo of phanerogamous plants. To release the embryo from the seed a dilute solution of caustic potash was used, and this rendered the embryo transparent. Very young embryos required only a few seconds' immersion in the solution, and afterwards placing in glycerine to make them transparent, and preserve them in that state. The glycerine was diluted with water and alcohol. Older embryos required longer treatment with the potash solution, and subsequent washing in acetic acid. Sometimes it happens that the preparation is too transparent, and the cell-walls are no longer distinguishable; but this is easily remedied by immersing it in a dilute solution of alum, when the walls become distinctly visible.—*Gar. Chronicle.*

Growth of a Bamboo.—At a meeting of the *Société Centrale d' Horticulture*, M. A. Riviere exhibited specimens of several different species of Bambusa from the botanic garden of Hamma, Algeria. Stems of B. nigra upwards of 16 feet long sprang up in six weeks, whilst those of B. viridi-glaucescens attained an even greater height during the same period. B. Quilioyi is regarded as one of the most ornamental, it is quite hardy in the climate of Paris. B. mitis grows from 35 to 50 feet high in the South of France, and is sufficiently hardy to be very useful. Bamboo stems make excellent vine props, supports for flowers, &c., and several persons are engaged in growing them. It is reported that Bamboo culture in the South of France is likely to develope into a remunerative industry. M. Riviere affirms that he has discovered good specific characters in the bracts covering the young buds. He adds, spring-growing Bamboos will bear without injury from 18° to 25° of frost.—*Gar. Chronicle.*

Danger of Fire from Steam-Heating.—It is a question whether steam-pipes in connection with wood are dangerous; not because the heat of saturated steam is capable of directly exciting combustion, but because the conditions under which wood, so placed, is liable to ignite, may be produced by the continued high temperature to which it is exposed. The marine inspection law of the United States recognizes this danger when it prohibits the use of steam-pipes in conjunction with wood upon vessels. A contemporary speaks thus: "Just what these conditions are, and the peculiar combination of circumstances under which they are most readily developed, are not now known, so that until they have been determined by a careful and exhaustive investigation of the whole subject—which task, we trust, some able scientist will soon undertake—it is by far the wisest plan to avoid all possibility of inducing a conflagration by taking the precaution to ascertain that heat-conveying pipes at no point come in contact with inflammable material."

To this it may be answered that wood in its natural condition cannot be ignited by the temperature ever attained by any of the steam-heating apparatus in use. In this city the steam-pipes are often in direct contact with the wood; and this is the case with the building in which our journal is published, and even in the room in which we write, but we apprehend no danger as long as no other cause of heat development comes to the aid of the heat produced by the steam. Such causes are animal or vegetable oils and fats, especially drying oils and varnishes. Almost everybody knows the effect when sawdust or rags are saturated with such oil—spontaneous combustion may be the result, by reason of the access of air to the interior of the highly porous mass which constitutes a heap of sawdust or rags. Oil on a wooden board will not produce spontaneous combustion, as from want of porosity the air has not sufficient access to the interior to produce enough simultaneous oxidation to raise the temperature to the point of ignition; but if steam-heat comes to the aid of the oil-soaked wood, it may supply the function of the oxidizing air penetrating the interior, and raise the temperature to the point of ignition, and we are perfectly satisfied that if the rare cases of ignition of wood by steam-heat were investigated, it would be found that a secondary cause was added to the heat produced by the steam, or by its condensation in the pipes; such secondary causes being wasted oil or the throwing away of a burning match, which would not set fire to cold wood, but might do so to wood thoroughly heated and dried. Even matches laying about and carelessly treated may ignite by steam-heat and set fire to papers, or the wood itself. But if such secondary causes are only guarded against, steam-heat may be considered as the safest mode of heating buildings—uniformly safer than currents of hot air, which may carry sparks along and fan an incipient fire rapidly into a blaze. In fact, the causes of fire from steam-heat are comparatively rare, while those from hot-air furnaces are very common.—*Manufacturer and Builder.*

Abies Fraseri.—At a recent meeting of the Academy of Natural Sciences of Philadelphia, Dr. Engelmann, of St. Louis, spoke about Abies Fraseri, the very local species of the highest mountains of North Carolina, which he had just visited, together with several botanical friends, members of this Society. This is the tree which caused these mountains to be designated the Black Mountains, giving their summits that sombre hue for which they are known; they seem to grow nowhere but on these mountains, and only on those that reach up to or above 6,000 feet altitude. The northern localities claimed for the species rest on confusion with forms of Abies balsamea, the common northern Balsam, of which our tree may be claimed to be the southern representative. A. balsamea does not seem to extend southward further than the Virginian mountain region, and it would be interesting to ascertain how near both species approach each other. Besides the well-known characters of the cones and their cusps, excellent distinctions are found in the structure of the leaves of both species. It may not be generally known, though it is a fact to which, since several years, some European botanists have called attention, that the anatomical structure of the leaves of these species, as well as of Conifers in general, is extremely various, and that this structure well characterizes many species, and is one of the safest means to arrange them in natural groups. Abies Fraseri and balsamea are so nearly allied, that without fruit they are constantly confounded, but the structure of the leaves will always distinguish them so well that a single leaf, or even a fragment of one, will invariably solve all difficulty. The leaves of Abies have under the epidermis, and between it and the cells of the parenchyma, which are full of chlorophyll, an arrangement of cells of thick walls, elongate form, and destitute of chlorophyll, analagous to bast cells, which have been called hypodermic cells; we find them in all species of Abies on the edges and on the keel, where they strengthen the leaf, but their distribution under the epidermis of the upper side of the leaf is very different in different species—they may be wanting there altogether, or may be differently grouped, or may extend over the whole upper surface; now in all forms of A. balsamea they are there almost entirely absent, even in those of the highest New England mountains, while A. Fraseri exhibits under the microscope a continuous hypodermic stratum of them.

Insects and Fertilization.—Pretty flowers are thought to have been so made in order to attract insects, and thus gain an advantage in cross-fertilization. There is no good without its evil, and thus we have pretty maidens to pull the pretty flowers, and ardent botanists to pull out and dry them before the insect-fertilized flower has a

chance to seed, and of these last especially, a modern poet discourseth thus:—

"'Full many a flower is born to blush unseen,
And waste its sweetness on the desert air,'
But where a British botanist has been,
In his collections you must seek it there.

"Were it the sweetest plant that ever bloomed,
If it were rare, and he found out the spot,
He'd make it rarer—nay, it would be doomed;
His spud would soon eradicate the lot."

LITERATURE, TRAVELS & PERSONAL NOTES.

COMMUNICATIONS.

AN APRIL DAY IN THE FOOT-HILLS OF CALIFORNIA.

BY MRS. FANNIE E. BRIGGS.

We set out one bright day for a little excursion in the "hills." For the first mile, our way lay across a fertile plain, green with waving grain and grass, and gay with flowers. Here, the Poppies (Escholtzias) made ground-sunshine; there, the Nemophilas had taken possession, and it looked as if the sky had fallen on the fertile acres. Such of these valleys as cannot be irrigated, are sown with a mixture of wheat and oats, in the Fall, which is nourished by the Winter rains, and cut before entirely ripe, for hay. Everything has a flavor of novelty. We have to "turn out" for a mule-team, but its ten mules have each an iron frame above the shoulders, with five bells suspended from it, which tinkle merrily, and the driver rides one of them, and manages the brakes to the two huge wagons with a strap. This use of bells is a relic of Spanish customs.

When we leave the plain, the way sometimes crosses the dry rocky beds of what were roaring torrents in the rainy season; sometimes crosses little patches of fine mountain grass, emerald green, and enameled with tiny flowers, and anon climbing steep, rocky hills, on whose rugged sides only hardy pines and ferns can find foot-hold.

Far up the hills, waving above the rugged rocks, I saw a new flower with the general aspect of a Cypripedium. Of course I soon had it in my possession, but it proved to be a Tulip. The stem was slender, branching and leafy; the three sepals, small and spreading; the three petals an inch long, delicate, pearly-white, revolute, and curiously over-lapping each other in a way that entirely hid the interior, which is fringed, and tinted like some ocean shell.

Well, this discovery was glory enough for one day, but on we went, and soon reached our destination. "Beautiful for situation," a fertile valley far up among the highest range of hills, sheltered on the north-west by a rocky ridge, and commanding a broad view of lower ranges of hills and their intervening vales.

It humbles, yet exalts the soul to survey such scenes; to feel its own littleness among these stupendous works of the Creator, yet to feel that *our* Father made them all, and gave them to us richly to enjoy.

We gathered flowers and ferns for memorials, took a long look at the broad prospect, and the far-off mountains, and slowly descended, to drive home in the warm sunshine, laden with Passion Flowers and Roses.

I notice a query about "Tumble-weed" in the magazine. Every one who has lived in the West knows "Tumble-weed." I examined it when I first came to Iowa, and *think* it is a Chenopod, but am not sure, for it is many years ago. The plant grows strong, and branches all the way from the ground, forming a dense globular mass. In the Fall it gets dry, and the wind breaks off the stem close to the ground, and then it rolls over and over, till something stops its course. I have seen dozens of them "tumbling" across a field at a time, and sometimes they pile up by the fences to such a height, that belated specimens go "tumbling" over to the other side.

NOTES FROM DALLAS, TEXAS.

BY AMMON BURR.

As many people from the States are looking to Texas for a new home, and as all horticulturists naturally feel an interest in what is doing abroad, I drop you these rough notes.

The American locust, or grasshopper, fell upon us unusually early last Fall, say latter part of September, and stripped every shrub and vegetable, and all nursery stock, bare of foliage. We usually have a good Fall garden, but the earth and air were alive with this pest, and nothing was raised. They seemed particularly fond of Chrysanthemums and Verbenas, and in a half day from the time the first cloud fell, all these were destroyed. I saved the wood of young apple and pear trees only by washing, or rather, smearing with a batter of clay. The native red cedar, and the Libocedrus decurrens, were entirely exempt from their attacks; but all the forms of the Chinese arbovitæ suffered very severely—our nursery of these was ate down to the ground. Olive, Jasmines, Gardenia, Euonymus, in fact, everything seemed palatable to them. This is the third time they have visited us since 1873, but only once or twice before, in the last twenty years, have they hatched out in sufficient numbers in the Spring, to do any mischief. Their ravages this Spring were very serious, and discouraged the great mass of our people from making horticultural improvements. In a few places the crops were almost entirely destroyed; but, as a general thing, crop prospects with us were never better. Of course they did not affect our cotton and sweet potatoes, as these are planted after the locusts have gone. The fruit on tall trees, and grapes on high arbors, were not reached by the young hopper; and just as soon as their wings were sufficient to bear their weight, they began to leave us—the oldest about 5th or 8th of May, and the last, or youngest, in two or three weeks afterwards. Even before leaving, they moved in a living stream in a north-west direction. Lime and Paris green did little or no good in destroying them. One man saved his wheat field by attaching a broad, net-like cloth in front of a two-wheeled cultivator, in which he caught and destroyed them. Another man paid children five cents per pound for all caught with a hand-net in his orchard. Others smeared pine tar, twice a week, on the bodies of fruit trees, over which they would not pass. But this killed some young peach trees, while those with old, hardened bark were unhurt.

The experience of Rev. L. J. Templin, in Kansas, is very nearly our experience with some things, such as Tea, China, and Noisette Roses, Japan Honeysuckles, Deutzia, Forsythia, Weigela, etc., viz: After being denuded early in Fall, they attempted an early Winter growth, and were destroyed by severe freezes. All of the Roses appeared alive and healthy in the Spring, in fact, were sold from the nursery believing all would grow, when, to our astonishment, nearly every one died. In the extreme southern portion of this big State I have had the English Laurel to be winter-killed.

The hoppers left me only two peaches on Alexander's Early, one of which ripened last of May (the other fell off), when the Beatrice was coloring well. This last, and its sister, the E. Louise, are much larger and finer with us than your chromo represented, and stand Spring frosts better than most varieties. They were well ripe when Hale's Early was coloring. This last is our best and finest early peach. It never rots, and is always large and handsome, but it does not ripen its crops altogether, as the Beatrice, but keeps the orchardists picking fruit for five or six weeks. The Tillotson, though very good, in nearly superseded by Hale's. Next on market is Fleitas' St. John, large and very showy, and ripening with Hale's, and gone some time before it is. Then comes the Carolina Amelia, largest and prettiest of early peaches, but too delicate for carriage. The Mountain Rose is just being tested by several, and bids fair to be a profitable market fruit, as it is quite firm, almost hard, some time after being well colored. With it, ripens Crawford's Early, and then comes Crawford's Late, Susquehanna (a better peach), Chinese Cling (the prince of peaches), and Old Mixon Free. Old Mixon Cling is a partial failure. After these comes a trio of good Clings, the Indian, Yellow Pineapple, and White Pineapple, the latter a little coarse. These ripen August 15th. After these, say September 1st, come in White English and Picquett's Late, followed by Goodes' October. These are our very best peaches, so far as tried in this section.

RHYMES AND RECOLLECTIONS OF A CACTUS MAN.

BY WM. T. HARDING, SUPT. OAK HILL CEMETERY, UPPER SANDUSKY, OHIO.

(Concluded from page 252).

The genus Gasteria, may be described as a comely, fair featured family. These very desirable succulents, may be handled with impunity, as they are good natured plants, in whom there is no guile. Of the first G, fair pulchella, is her name. And the second G, soft mollis. Then,

picta, all painted and gay; with shining nitida, beautiful formosa, lovely venusta, and the many dotted pluri-punctata, and poor warty verrucosa. The few named, will give an idea of the many left unmentioned.

The genus Haworthia, is *cousin-german* to the Aloes and Gasterias, and their beauty is at par, with any previously quoted. They are a safe investment, which will always realize their full face value. Such stock, though often watered, never depreciates. They are worth just as much to-day, as they were when H. retusa, and H. mutica, were first in the market, in 1720. H. albicans, H. margaritifera, H. mirabilis, H. tortella, H. venosa, H. lævis, H. cordata, and H. translucens, were at the time of which I write, inmates of all good greenhouses.

The little Apicra *coterie* is not so numerous, but, is nevertheless, a very select and pleasant company. They are prim, precise, and peculiar. A. pentagona, A. aspera, A. spiralis, A. nigra, and A. imbricata, are fair specimens of the set.

Kalanchoe, is the name of a small, but very handsome genus; but seldom seen now-a-days. K. acutiflora, K. rotundifolia, and K. ægyptica, are the most remarkable kinds of the *antique* group.

Cotyledons seem to belong to the *arabesque* style of plants. C. clavica, C. spinosa, C. cæspitosa, and C. cristata, will serve as examples.

As the writer looks back along the vistas of time, and sees within the old dry stove, their quaint forms, still unchanged, the scenes of other days, and their pleasant memories, come up again with all the freshness of youth.

Of the Cereus grandiflorus, or night-blooming Cereus, to which previous allusion is made, there still remains much to say. A large specimen, which had frequently bloomed before the writer's time, was about to bloom again. For some time he had watched the embryo flowers from their first appearance, as day by day, they gradually increased in size; until one day late in the leafy month of June, they gave unmistakable indications of soon expanding. My kind preceptor was a sort of garden prophet, whose opinions in matters Floricultural, or Horticultural, no one doubted. No word, or warning, from Delphic oracle of old, was ever more emphatic than his; and as he prognosticated, so had the flowers progressed. Well, this very June morning, he informed the writer that one of the blooms would assuredly open during the coming night; and it was unanimously agreed that himself, wife, and daughter, should keep a becoming vigil, at the floral shrine of the night-blooming beauty. I, of course, being equally interested, was to be one of the watchers, and was specially charged to keep a sharp lookout for the coming event.

The evening was as calm and serene as could be desired, while, in anxious expectation, the hours passed slowly by. During this time, I had frequently gone to and from the succulent house to report progress at the gardener's cottage. At about eight o'clock, I perceived the floral globe was gradually enlarging, and from thence continued to visibly change until eleven. All of which was duly reported at the cottage. In all haste, pretty Rose and I started to take another look at the remarkable flower, so fast unfolding.

The glorious disk, or star-like flowers, with its glistening whity-yellow petals, so precisely laid, and evenly arranged around a lustrous profusion of long, silky stamens, gracefully drooping from the centre, was in the highest degree of translucent splendor. Emitting the most delightful and exquisite odor possible, it eminently merited the designation of *grandiflora*. Like many a beautiful flower, and pleasant hour, it soon passed away. But the remembrance of it, and the evening's associations, never will; until all things earthly are forgotten, and the writer too, passes away.

There is still much left unsaid about succulent plants; but how to grow them must not be omitted. Pot culture has many advantages, and will continue to be the one most generally adopted. Yet, a properly constructed house, in which they could be planted out, in the more *natural* way, would be the most appropriate. Having constructed Fern houses, with miniature mountains, rocks and ravines, so, would I suggest the formation of a succulent house. Any good friable loam, with a fair portion of sand and crushed charcoal, will grow them. With proper drainage, and *careful watering*, they will grow in any ordinary greenhouse; if the temperature, during the Winter months, can be maintained at about 60°. While in the Summer season, they will derive heat enough from Old Sol. There is danger of the broad-leaved kinds blistering in bright, hot, sunny weather, unless the glass is made slightly obscure. Nothing can be better adapted than they for the dwelling-house windows. A light room, or bay-window, would suit them exactly. If a rustic stand, of a

rather solid kind, on castors, was made for the hall, corridor, or room, where sufficient light could be had, with heat, of course, nothing could be more suitable for their reception. It occurs to me, if the rough outside bark of the cork tree, Quercus suber, such as they are using in Europe for rustic work, could be had, being so light, yet tough and durable, it would be excellent material with which to build a light succulent mountain, for either plant-house or parlor. And if the pots are hidden in dry sphagnum moss, the illusion would be perfect. And what a delightful time there would be if a night-blooming Cereus could be coaxed into bloom, and with social friends awaiting for just the time and "just the hour

> When pleasure, like the midnight flower,
> That scorns the eye of vulgar light,
> Begins to bloom for sons of night,
> And maids who love the moon."

NURSERY CREDITS.

BY J. M. JORDAN, ST. LOUIS, MO.

Every one is supposed to understand why we have hard times, and has a remedy for curing them. I may be, therefore, excused if I say that with nurserymen and florists, the trouble is *credit*. People cannot pay their debts, and yet there would be no debts if no one gave credit. Under this system those who pay, have to be charged for those who do not, and when there is a large portion who do not pay, those who give credit, as well as the borrower, go down. It is seldom of use for the lender to push for his own, as nursery stock does not realize ten cents on the dollar at a forced sale, as I know from personal knowledge. Stop the credit business. Let those do business only, who can pay, then it will make no difference in what shape the balance of trade is settled, or the sort of currency used to accomplish it.

[Mr. Jordan, of course, refers to the reckless use of credit. Nurserymen and florists often have stock which no one wants in the regular way, and they think it is just as well, at least, to sell it on time to a doubtful customer, as to burn it. The doubtful customer does not pay, but he becomes owner of thousands of trees which, perhaps, cost a dollar to raise,—for nothing!

But he sells them for a quarter or a half dollar, while the original raiser is still selling for a dollar. The one cannot really sell, to make money, for less than a dollar, but doubtful customer, getting them for nothing, does well at half the price. So, in order to sell at all, he has to come down to the prices of doubtful customer, and, in the end, he cannot pay either. Such, and similar credits, come fairly under Mr. Jordan's denunciations.

But fair, legitimate credit is a good thing, and there are few nurserymen, or florists, in the trade now, who have not, at some time or another, profited by it.—Ed. G. M.]

A KANSAS LETTER.

BY H. E. VAN DEMAN, GENEVA, KAN.

This State has been called "drouthy Kansas," but it does not seem so to me. Six years experience in the State proves that we have no more drouths here than elsewhere. This present season has, so far, been very rainy. The streams have overflowed their banks, and damage has been done to some farms. However, crops of all kinds promise well. The fruit crop is good.

On the 5th of May last, a sharp frost thinned the fruit that was set, on the cherry, peach and pear trees, and blasted many of the apple blooms. However, there is an abundance of all kinds left for home use, at least. We did not suffer near so much as the States east of us. One thing I would like explained: The frost caused the peach leaves, that were out on the poorer seedlings at the time of the frost, to curl, and the fruit on these trees to nearly all drop, within a few weeks, while the better kinds, such as were thought good enough to bud, were almost entirely exempt. The leaves did not curl, and the fruit remains healthy. Why the better kinds, that we generally thought to be tender, escaped injury that the hardier ones did not escape, is a mystery to us. Some one please give scientific reasons, and state whether there are other like examples. We had a like occurrence here two years ago.

The horticulturists in this new State are being more and more encouraged as time and experience develope their resources. It has become a settled fact that our apples cannot be excelled. The show of samples at the Centennial from Kansas cannot be gainsayed. We now know what will succeed here, and if new comers will examine and plant by the recommended lists of our State and Local Horticultural Societies, and throw aside their old Eastern notions, they will save themselves many disappointments. We

have found that the old reliable R. I. Greening, Roxberry Russet and Baldwin, are almost worthless here. We can, and do, grow finer specimens of these varieties, than ever grew in New England, but, at the same time, they are not profitable bearers here. We have others that are excellent substitutes. The locust, or grasshopper, has been, and is, a fruitful source of talk and annoyance, yet we have abundant crops of all kinds, and there is more scare than real damage.

To any who think of coming here to locate I say come and see our country for yourselves. The three great thoroughfares, along which the best farming and fruit lands lie, are the M. K. & T. R. R., through the Neosho Valley, the A. T. & Santa Fé, coursing the great Arkansas River and the K. P., along the Kanses River, and its branches, the Smoky Hill and Republican. It takes grit, patience, energy and some money, to warrant success. In the poorest shanties and dug-outs on the frontier may be found as refined and courteous people, as through the boulevards of your own Quaker City. Do not think that rough, ignorant society is the chief element here. The Indian's scalping knife, and the Texas drover's pistol, are of the past. We have far less of the tramp and the beggar than you, and vicious poverty is almost unknown.

The church bell breaks the silence of a peaceful Sabbath. School-houses, factories and tasteful residences, are multiplying on every hand. Orchards, groves and parks, are growing larger and more numerous upon the treeless prairies. We are trying, by legislation, to protect what birds we have, and encourage others to make their homes with us. The Southern mocking-bird spends his Summers with us, and yearly increases as our groves afford more attractiveness.

But do not think that we have no drawbacks. The locust visits us occasionally; the plum curculio is a nuisance; the currant, and the sweet varieties of the cherry, do not succeed in our climate; the arborvitæ and the firs are grown with great difficulty. But we can, and do, have plenty of easily-grown trees and flowers. "Time proveth all things."

EDITORIAL NOTES.

EUROPEAN NOTES BY THE EDITOR.—I have mentioned the Queen's private residence at Osborne House in the Isle of Wight, as one of the small but beautiful gardens with which England abounds. It was to me especially interesting as showing how rapidly trees could be made to grow into beauty, or even utility if one were disposed to look on planting as a money investment alone. There are, of course, many trees now which were growing on the estate when it belonged to Lady Isabella Blatchford, of whom Queen Victoria purchased it; but the major part of the trees now growing here, were planted by Prince Albert, or since his time, and numbers are over fifty feet high and six feet in circumference. Cedar of Lebanon, which we may with justice call a slow growing tree, are many of them here over forty feet high. A large number of our Californian Coniferæ, of which Prince Albert was very fond, are also of about the same height, and many of them I saw in great beauty for the first time. The Cupressus macrocarpa, for instance, here about thirty feet high, forms one of the most beautiful sights that a human eye could desire to look upon, and there are some very fine specimens of Libocedrus decurrens, which, I may say here, I find, all through England, "Thuja gigantea," though the error has been shown over and over again in American literature, and though any one can see by the very look of the plant, if they were disposed to be inquisitive, that it is not a Thuja at all. If you ask them for Libocedrus decurrens, they "don't know such a plant." The real Thuja gigantea they call Thuja Craigiana.

A very large number of the trees—enough to make quite an arboretum by themselves—have been planted at different times by celebrated or distinguished persons, as memorials of their visit to Osborne, or as commemorative of the birthdays of members of the Queen's family. The names of the planters and the occasions are neatly painted on "labels" at the foot of each tree. Some of these, like some of the planters have had misfortunes in their career, and looked unhappy; but the majority were doing very well and must be a great source of pleasure. I envied especially the Princess Helena, who on May 25, 1855, planted an Abies bracteata which was now thirty feet high. The branches lay flat on the ground, and the tree made a regular cone. These branches on the ground measured fifty-five feet round. The general appearance of the tree at a little distance reminded me of some of the beautiful Douglas' Spruces I had seen in their native places of growth, but the leaves are very long,

and I should judge a Torreya when old would look something like this. I wondered when I saw it whether in our own country we had in cultivation so pretty a specimen of our own native tree. The part where these trees are mostly growing is separated from the other parts of the ground by a dense hedge of Laurels and Laurustinus; and this makes a shelter from the stiff sea-breeze, very favorable to evergreen coniferous trees brought from our Pacific shores, though the hedge itself was planted to give a good landscape gardening effect to the grounds. There are some pretty specimens of our mammoth tree, Sequoia gigantea, on the grounds, and some that have suffered from the same disease which has not left us one good specimen, in the Eastern Atlantic States, indeed hardly a specimen of any kind at all. Whenever I would ask the tree growers of England or France about this disease they would answer that they knew nothing of it, and yet I saw traces of it everywhere in both countries. It is probably a species of Æcidium, a small parasitic fungus. It attacks the lowest and weakest branches first, and thrives best when the weather is warm. In our country with so much Summer heat, it progresses upwards rapidly enough to destroy the whole plant before Winter sets in; but in these European instances it only browns some of the lowest branches though in a few cases I saw half the tree destroyed. When I would call attention to it, I would be told it was "only something in the soil," although a close neighbor a little more shaded perhaps, in the same "soil" would look quite sound.

There is a long avenue to the main road, planted by Prince Albert, with a double row of trees. The first is of Araucaria imbricata, the Chili pine, alternating with evergreen Oaks, and the back row of Cedars of Lebanon and evergreen Oaks. There was thus three chances of some one doing well, so that the other two could be cut away in time. All have done well, and there has been nothing cut away yet. Our readers, of whom only a few have seen the Araucaria in greenhouses, can have no idea of the peculiar effect this tree has on the English landscape. It is quite hardy in that country, and we meet with it everywhere. Every garden has its beauty spots formed by some combinations or other; but I do not know that I saw a more beautiful piece of garden art in England, than was here with an Araucaria for the chief centre. It was on a mound a few feet high, and behind the Araucaria were two beautiful specimens of the Californian Cupressus macrocarpa, the dark and feathery edge of which, seen on each side of the Araucaria made a sort of perspective shadow to it, rounding it off, as it were, in a most beautiful manner. In the foreground of the mound, and in front of the Araucaria, were pieces of fossil wood and rock, and in among them our Yucca gloriosa. Around the base of the little evergreen crowned mound, a narrow gravel walk sweeped, and on the other side of the walk, on each side, masses of Yucca filamentosa. The Araucaria itself has, as those who know it recognize, a sort of fossil-like look, and the Yuccas are scarcely less geological in their expression. The whole made a happy union and harmony such as we rarely see in Landscape Gardening. A seat was arranged where one could sit and enjoy this very pretty feature, as I did for some time. Those who know Queen Victoria tell me that she has a keen relish for natural beauty, such as this. We often see trees, especially evergreens, clipped and sheared into many strange, if not really hideous, forms; but there is no tree-shearing on these grounds, except where some object is to be gained by it, beyond the mere manufacture of a monstrosity. One of these usefully sheared plants is a Myrtle against a wall. This Myrtle covered the whole surface of the wall except the coping, and was sheared so close and regular that one might almost imagine a painter had wholly covered a board with green foliage. The whole was regularly about eight inches deep.

In many parts of England the Pyracantha and Cotoneaster are grown against walls in the same way, and when kept thus neatly sheared are remarkably pretty—quite as much, if not often prettier, than Ivy. On a large heavy wall here our Magnolia grandiflora is grown, and neatly trained. Of course, this tree is "hardy" in England, but it misses our Summer heats, and this wall treatment supplies some of this. Here, with its very sweet white flowers and fine evergreen leaves, it was very highly prized.

One of the matters with which I have been struck everywhere in England, and which I find to prevail even here in this royal place, is the simplicity of the materials out of which the best garden effects are made. In front of some of the Queen's rooms, is an extensive geometrical flower-garden, made up of numerous beds for flowers in masses, with gravel walks between. In many of these gardens the borders may be of box; but here a narrow edge of what

appeared to be costly stone, surrounded each bed. The effect was very pretty; but a close examination showed the stone to be only painted wood. Near by is a very beautiful garden, made up in the grandest style, for in the centre is the celebrated Greek slave, which, as a work of art, drew so much attention at the first and great World's Fair. The fountain basin is of polished granite; but soon after, we pass out into real nature under an arbor of roses and vines. At a little distance is an Alcove, made in a terrace wall, and we are struck with the apparent richness of the work, and the general choice appearance of everything in it. But as we get closer we see that the pretty flowers and foliage apparently carved out are only seashells fastened on the wall in that way, and the whole washed with stone-colored cement, and the massive ebony work is but polished coal. About these very artificial garden parts are, in excellent taste, the more artificial-looking plants, and the different kinds of Palm enter largely into the beautiful effects. Some of these Palms must be very valuable from their great size. Here, for instance, is a Chæmerops* himulis, about ten feet high, and with numerous young ones about it, so as to make a complete mass of palm leaves. Though even the Orange grows here so well, that there were some fruiting on the garden walls, it is thought best to protect the palm in Winter a little, and it is boarded over.

As I have said, the Queen prefers natural beauty to sheared trees, except when such shearing harmonizes with artificial work, and in the square in which is one of the geometrical gardens, are four sheared Bay trees in each of the four corners. They are of huge size, and here their effect is good. Leading down to the sea is also a wide gravel walk on each side of which are sheared Portugal Laurels, which also have a good effect. Around the palaces in Paris are huge Orange trees which have been kept in large square tubs for many years. They are all sheared, or rather trimmed with knives, so as to be all exactly of one size. If one could look along the top of a hundred of them in a line, no one would show a quarter of an inch higher than the others. These, during the Summer, in France, are set out in their tubs alongside the walks at equal distances. But they cannot well have oranges at Osborne; but they have Portugal Laurels in huge tubs, looking for all the world like these French Orange trees, as they are treated and placed in the same manner. But they appear grander, for the tubs in which they are growing are very much greater, and the trees are larger in every respect. But the secret is explained when the reader learns that the tubs are *never moved*. The tree being hardy, remains there Winter and Summer, indeed the tubs have probably no bottom, and the Laurels are really growing in the ground. Yet these neatly painted tubs with globes on the four upper corners, give all the grandeur of the Versailles Orange trees; and what is of more consequence to an American and an Englishman, at very little cost for all! The piece of landscape gardening connected with this tub-laurel-lined avenue is a masterpiece of good art. There appears to be only two or three acres on each side of the avenue, but while one is kept flat and smooth, and relieved only by the groups of Conifers and other artistic trees, the other side has a rolling contour of surface, and has massive groups of deciduous trees to match with the heavy swells of ground surface. Yet so well is the long straight walk carried through, that no incongruity between the scenery on his right and his left strikes even the most critical.

Here, as everywhere, the aim in bedding is to have some carpeting unique, and not a copy of some one else's work. One might write a volume of what he sees in this respect, but it would be out of date by another year, as the object is to have new styles, as our ladies have new bonnets. In these grounds, coming to a place where some roads cross, there are beds in the angles in which the plants are arranged as playing cards. The hearts, clubs and diamonds are outlined chiefly with a sort of golden Stellaria, or perhaps, it may be a Cerastium and Alternantheras. I remember, however, that the diamond was made of Echeveria for the outline of the character, and the filling in was of golden Pyrethrum.

The vegetable garden is not large, the Queen having most of the kitchen wants supplied from Windsor. What is grown, however, has to be of the very best character, and everything did look well. Those who think that pruning injures trees, would especially be struck by the healthy appearance of the wall fruits, which are here of immense age, having been growing here before the Queen bought the place. A pruned plant, of course, never has a large stem. The Osage Orange in our country, unpruned, makes a large stout tree in a few years—in hedges, cut back, in twenty years is no stouter than one's wrist. So here in this garden we have Pear trees trained to

the walls and pruned annually, that were yet of very large size. I measured a Glout Morceau which measured three feet nine inches round.

One of the pleasantest features of my visit to Osborne was the acquaintance of Mr. Todman, the gardener. When I left my native land Mr. Winchester was gardener here. Like so many scores of those I left behind me, he had died before my return. With my card of admission I had to search for the gardener, and I found him stripped to his shirt, on the top of a ladder, training the trees himself to the wall. The general impression we have of men in these high positions is that they have "gloves on their hands and nothing to do." I was pleased to find Mr. Todman a worker as well as an intelligent well-informed gentleman—just the sort of man, I thought, we like to have in America.

But I must stop here, much as there was that I think it would interest my readers to tell. There is much I would like to say of England and France which will take years to recount. I must from month to month say just a little of some things, and let the rest dwell only in my own remembrance.

The Garden of America.—Friend Chalkley Gillingham claims the Susquehanna and Potomac regions as the garden of America, and in confirmation thereof gives the following figures:—"The mean temperature of this region for the last seven years was: for the Winter months, 33° 29'; Spring, 50° 47'; Summer, 76° 30'; Autumn, 55° 47'. The mean rain-fall for the U. S. for the year ending June 30, 1876, was 45.18; for Washington, D. C., it was 48.01. 'Thus we are between the extremes of heat and cold, and consequently we have the best fruit region in the world.'"

Horticulture in Kentucky and Tennessee.—We had a chance to spend a few weeks in this region the past month, with Nashville for headquarters, and were delighted to find much more Horticultural improvement than we expected. The nursery business, as conducted by Messrs. Truett's Sons and Morgan, Underhill & Newsom, and McIntyre, seemed very prosperous. Mr. Lishy also, we were informed was doing well, but happened unfortunately to be out of our line of travel. We had the chance to see the beautiful private places of Dr. Cheatham, Mrs. A.V. Brown, Mrs. Polk, the grounds of the Insane Asylum, the Vanderbilt University and many others. At this season an Editor can do little more than wander about and take notes for future use, but the treatment accorded to the writer by his Southern Horticultural friends was so kind and cordial that we must make place for this note.

The Christ's Thorn.—It is of course not possible to tell exactly what plant it was of which tradition says the crown of thorns was made Rubens in his picture seems to have a Gleditschia (our Honey Locust). Other writers think it is the Ziziphus communis, the Jujube; but the weight of opinion seems to settle on the Paliurus aculeatus, which is a low-growing thorny shrub, hardy in the Middle States of the Union, except in very severe Winters. The Ziziphus is hardier than the Paliurus.

An Enemy of the Potato Beetle.—It is stated in the *Field and Forest* that the old potato beetle, Lema trilineata, and comparatively harmless, feeds on the larvæ of the Colorado Beetle. It is worth confirming, as it is unusual for a herbiverous insect to turn carniverous, though it is believed by some good entomologists that some of the Lady Bug family, now carniverous, in past ages fed on herbs.

Transactions of the Wisconsin State Horticultural Society, Vol. VII., from F. W. Case, Sec., Madison.—An excellent volume,—excellent because it does not confine itself to the cultivation of a single branch of Horticultural art, but encourages all. There are essays—excellent ones—on every department of gardening, and none the worse for being generally short and to the point.

Tenth Annual Report of the Secretary of the Connecticut Board of Agriculture. Printed by the Legislature. From T. S. Gold, Secretary, West Cornwall, Conn. Besides many matters of interest, special fertilizers, manures, and woods and woodlands have a conspicuous place among the subjects treated of in this volume.

Transactions of the Massachusetts Hort. Society, Part I. From Robert Manning, Sec'y. This admirable serial does honor to the Horticultural literature of our country. The leading essays and discussions in this number are on road making, self and cross-fertilization, fertilizers, and squash and melon culture—the latter especially exhaustive of the subject.

Orchid Grower's Manual. By B. S. Williams, of Victoria Nurseries, Upper Holloway, London. Fifth Edition. We are very glad to see a new

edition, and so far on as the fifth edition of a work like this, because it shows that there is a much deeper interest taken in the culture of these plants than many people suppose. When some years ago we were favored by a series of articles from the pen of that admirable orchid-grower, Mr. Taplin, some would ask us why take up room with instruction on plants that no one grew? but that was just the reason we valued Mr. Taplin's papers. People take Horticultural papers for the reason that they need instruction, and they wish to know what they ought to do in order to get as much pleasure as possible from gardening. Orchid-growing is one of these specialties which always gives pleasure. It was at one time thought to be very expensive to care for these plants, and to require great skill in their management; but thanks to writers like Mr. Taplin, and especially to the labors of Mr. Williams, whose "Manual" is now before us, the work of growing them has been much simplified. Of course if one desires to excel in orchid-culture as in anything else, the more knowledge and experience the better. To all, whether novices or experienced hands, Mr. Williams' book will be welcome, but we need hardly say this of a book in its fifth edition. This speaks for itself as to how useful it is found to be.

The Cabbage Family. By David Landreth & Sons, Phila. This gives the history of the Cabbage, from its wild to its improved condition, and an account of the leading popular varieties of the day.

The Locust Plague. By C. V. Riley. As most of our readers know, Prof. Riley more perhaps than any other man, has made the locusts a study; and his position as Chief of the United States Entomological Commission on the Grasshopper gave him unusual facilities for studying them. This little book contains all that Mr. Riley knows about them, and there is no one likely to suffer from this insect, but will find profit from reading it.

Fruit and Bread. Translated from the German of Gustav Schlickeysen by Dr. Holbrook, New York. Published by M. L. Holbrook & Co. This is an attempt to prove that man was destined to eat only fruit and bread, and drink only water,—that he has wandered from this original design of nature,—and that the consequence is the numerous diseases by which he is afflicted, and that it would be better for him if he should return to his primitive food. How he came to wander so far away while other animals have remained true to their original instincts, is not shown; but the work on the whole may be regarded as the best exposition of vegetarian views that has yet appeared.

Swine Husbandry. By F. D. Coburn, New York. Orange Judd & Co. Harris on the Pig, is a well-known work by the same publishers, and one might suppose from this fact that another one on the same subject, by the firm, would be of a totally different character. A comparison with that work shows that there is room for both. Orange Judd & Co. seem to be taking the lead as publishers of standard agricultural books in this country.

The Floral Gazette.—This was once *Park's Floral Gazette* and as such is now in its eleventh year. Mr. Park now publishes it at Mt. Vernon, Ohio. It is an unpretentious little monthly, of sixteen pages, devoted wholly to flowers; but in its way does a great deal of good.

The Florist and Pomologist. Edited by Mr. Thomas Moore. We have before us the numbers for June, July and August, each with colored plates of some new fruits and plants. The price is only one shilling a part, which, considering the excellence of the plates is cheap indeed. It is one of our most welcome English exchanges.

Horticultural Societies.

EDITORIAL NOTES.

Display of Cut Flowers at the Permanent International Exhibition.—In order to adorn the building on the "Governor's Day," in Philadelphia, premiums were offered by the management for floral displays, and which brought out considerable competition. We seldom admit into our columns anything of purely local interest, but as these exhibits will be continued as occasion offers, and are intended as the Exhibition itself is to be, a whole world affair, we give

this award in full, as a piece of general information :—

Mr. John S. Morton, President of the International Exhibition Company :

The Committee on Floral Designs and Flowers beg leave to recommend the award of the following premiums for designs of four feet and over at the base : For the finest design by a florist, for a chaste and beautiful anchor resting on a handsome base, inscribed with the word "Hope," first premium of $50, to Craig & Bro., of Philadelphia; for a beautiful design formed of a series of light and graceful arches rising to about the height of seven feet, second premium of $25, to Pennock Bros., Philadelphia; for a well-executed design of an American flag surrounded by a handsome frame composed of flowers, special premium, $25, to Joseph Kift & Son, Philadelphia; for a well-designed plan of a lighthouse formed of fine flowers surmounted by a glass dome, a special premium of $25 to No. 3; for designs less than four feet at base : for an exquisite frame formed of fine cut flowers, with a medallion of Washington in centre, surrounded by a beautiful wreath, and resting on a bed of ivy leaves, the whole forming a chaste and beautiful design, florists' first premium of $25, to C. L. Allen & Co., of Queen's, Long Island; a table formed of variegated leaves, with a beautiful glass vase in centre, the amateur's premium of $25 to Charity L. Mabbett, Vineland, N. J. We also recommend the following special premiums :

For designs in good taste and formed of fine flowers : For a harp well formed, $10 to Frank Keefe, Philadelphia; for a well-formed pyramid, $10 to Pennock Bros., Philadelphia; for a beautiful design, $10 to Thomas Meehan, Germantown; for a stand very fancifully arranged, $10 to John Plender, Philadelphia; for a cross of white and red flowers, to No. 23; for a beautiful vase of white flowers, $8 to Jas. Ritchie, Phila.; for an anchor, red, white and blue, $8 to James Ritchie, Phila.; for a beautiful design formed of baskets, to No. 10; for a large and beautiful stand, $8 to Pennock Bros., Phila.; for a large stand and table, $8 to John Dick, Phila.; for a plateau of flowers, $8 to W. H. Westcott, Phila.; for a pyramid, $5 to James Kent, West Phila.; for a plateau, $5 to same; for a very beautiful cross, $5 to Isele, Phila.; for a small stand, $5 to W. Faust, Phila.; for a beautiful basket, $3 to James Kent, Phila.; for a wreath, $3 to Isele Bros.; for a plateau, $3 to same.

Your committee congratulate the Exposition Company on the variety and beauty of the designs shown, all of which were in good taste, and evinced a commendable degree of public spirit on the part of our florists in competing for the moderate premiums offered. All of which report is respectfully submitted by

Yours respectfully,

R. Buist, Chairman,
James Ritchie,
J. E. Mitchell,
G. H. North,
Isaac C. Price.

New York Horticultural Society.—Only recently has a newspaper slip giving an account of the New York Horticultural Society's Spring Exhibition, come before us. We are pleased to gather from it, that it was a complete success, both in the attendance and in the general excellence of the articles exhibited. Mr. Taplin, Superintendent of Mr. Such's establishment, had many rare plants, and took the premium for the best new or rare plant exhibited, which proved to be Artocarpus Cannoni, the leaves of which were a reddish-brown. The second premium in this class was taken by Mr. Buchanan, with Pinguicula orchoides.

The new white Hydrangea, Thomas Hogg—a group of 130 plants—formed one of the showiest groups in the exhibition. It came from Mr. John Cadness. A Japanese Magnolia named M. Hypoleuca, from Thomas Hogg, "promised to be a great acquisition." Messrs. Bliss & Son, Potato "Snowflake" attracted special notice by its fine white appearance, good shape, and excellent keeping and cooking qualities. Among the exhibitors who obtained honor for their products, we note the names of Charles Zeller, Flatbush; Edward Symes, gardener to Mrs. Mitchell, Tarrytown; John Henderson, Flushing; Peter Henderson, Jersey City; H. Reynolds, Flatbush; W. C. Wilson, Astoria; William Ball, Spuyten Duyvil; Walter Reid, Broadway; S. B. Parsons & Son and R. B. Parsons & Co., Flushing; Wm. Bennett, Flatbush; John Bush, Tremont; James Bush, gardener to Wm. Elisha Brooks, Norwood, N. Y.; F. Roenbeck, Bayonne, N. J.; W. A. Burgess, Glen-Cove; Fred. Gordon, Broad St., N. Y.; A. McConnell, Sixth Ave., N. Y.; J. G. Beschamps & Sons, New York; Mrs. W. J. Davidson, Brooklyn; J. Finn, Tremont; John Eagan, gardener to Mr. Gurnee, Irvington; Ed. Huckins, West Mount Vernon; and S. Henshaw, of New Brighton.

Georgia State Horticultural Society.—Horticulture, under the lead of Mr. Berckmans, J. S. Newman and H. J. Peter, is looking up in Georgia. The second annual meeting, held on the 1st of August at Macon, as we judge from the local papers, was a great success.

Pennsylvania Hort. Society.—The annual exhibition of this Society is being held just as we go to press, and promises to be one of the most successful held for many years. Mr. Hugh Graham, one of Philadelphia's most esteemed florists, is the Chairman of the Committees this

season, and has used untiring efforts to make it the success it promises to be.

Maryland Hort. Society.—During the week of the meeting of the American Pomological Society, the Maryland Horticultural Society held its annual Exhibition. It was a remarkably creditable one in every respect, and we have not for a long time felt so much encouraged in regard to the future progress and position of Horticulture in our country as after seeing this beautiful show. The plants were not only of new or rare kinds in numerous cases, but had a large number of well-grown specimens. It has often been said in regard to American exhibits of plants that they seldom were more than the sweepings of greenhouses, showing no evidence whatever of any gardening skill in their growth. The exhibits of most shows unfortunately compel us to say honestly that this is the truth, and it is therefore with the more pleasure that we record the fact that on this occasion there was a better average of plants, healthy and well-grown—we do not mean overgrown—than we have seen brought together for a long time. Another feature which impressed itself strongly on us was the cordial co-operation which seemed to exist between all the gardening fraternity of Baltimore in one good result. As human nature is what it is, we always expect some dissatisfied persons, sometimes with and sometimes without good reason, and who cannot therefore work well together. If there be any of this here, we did not find them, and all this is in favor of a vigorous long life to the infant society. It also has the advantage of amateurs of taste and culture, who, without wishing to appear prominent, yet do not shrink from leading off when they feel they can be useful. The President of the Society is Mr. W. H. Perot, a Baltimore merchant, whose country seat of forty acres is in many respects not inferior to the celebrated one of Mr. Hunnewell at Boston. The Secretary—Mr. W. B. Sands—is the editor of the *American Farmer*, and one of the best workingmen in the line of tact and talent that any Society could have. A large number of others outside of the trade take an active pride in the success of the Society, and we shall not be at all surprised if, before long, this young Society does not press the older ones of Pennsylvania and Massachusetts pretty hard for pre-eminence.

A large number of the plants on exhibition had no exhibitor's names attached to them. This is supposed to insure a more impartial decision by the jurors, but it is doubtful. On the other hand it robs the exhibitor of half his honors. We were enabled to ascertain only the following from an inspection of the plants on exhibition: Mr. Wm. T. Walters, Alex. Frazer, gardener, Patterson Park, Mr. Frazer, Supt., Sam. Feast & Son, Robt. Buist, W. H. Wehrhaus, John Saul, Joseph Kift & Sons, W. D. Breckenridge, U. S. Bot. garden, W. R. Smith curator, Robt. Halliday, Cromwell & Congdon, James Pentland, Mr. Black, Thomas Farley. The fruit department was chiefly in connection with the American Pomological Society's exhibit, and we were not able in our short examination to do credit to the Maryland show separately from that. We have only time and space at this late period of the month to say that all in all this exhibit of the Maryland Society in itself, and in all its associations, was one which all will long remember who took part in it.

The American Pomological Society.—We have only time to say, as we go to press, that the biennial meeting of this excellent body was held in Baltimore according to an announcement, and was one of the most pleasant and profitable it has ever held. At the last moment it was found that the venerable and esteemed President, Col. Wilder, could not be present, not being quite as well as it was expected he would be, and the Treasurer, Mr. Thos. P. James, was absent for the same reason. Mr. James is one of the most unselfish workers in the body, and his absence was very much regretted. In Col. Wilder's absence, Mr. Hovey presided, and Mr. B. Smith, of Boston, acted as Treasurer. Excellent essays were presented, and which will appear in the transactions. The fruit list was revised, and such additions and corrections made as seemed warranted by circumstances. There were few discussions, wherein were much difference of opinion, except on Pear blight and Early Peaches. In the latter case it was quite evident, from the experience given in, that while there was a very close resemblance of one of the popular peaches to the other, there were other cases where the same kinds exhibited differences enough to make distinction important.

By special vote of the Society, Thomas Meehan was invited to address the body on Pear blight, but he had nothing new to offer beyond what is contained in his remarks at Chicago, as reported in the Society's proceedings of that year. Mr. Transou, of Tennessee, moved that the next session (1879) be held at Nashville, others moved for Rochester, and for New York city, Mr. Quinn making a warm speech in favor of the latter. But nearly the whole of a full meet-

ing voted for Nashville, and on the subsequent motion of Mr. Quinn himself the motion was made and carried "unanimously" to Nashville.

A particularly agreeable incident of the meet- was a trip up the Chester River to Riverside, the residence, and peach and pear orchards of Col. Wilkins. Few of the members ever had so much instruction in the culture of these fruits on a tremendous scale as this visit afforded, and many were the praises bestowed on the Col. for this generous treat. Some two hundred and eighty members went up. To help the Society, the Maryland Horticultural Society spent several thousands of dollars in erecting temporary accommodations for the fruits of the Association, placing the Pomological Society under lasting obligations to them.

Col. Wilder's address was regarded as eminently practical, and one of his best efforts, and we need ask no pardon from our readers, on account of its length, for giving it in full in our pages.

ADDRESS OF MARSHALL P. WILDER.

Gentlemen of the American Pomological Society:—

This is the sixteenth session of our Association. We meet here by the invitation of the Maryland Horticultural Society, through whose courtesy and liberality we have been provided with most ample accommodations for the occasion.

Most heartily do I rejoice in the privilege and pleasure of taking by the hand so many with whom I have associated in the past for the promotion of the objects of this Association, and from whom I have received so many expressions of confidence, and so much assistance in the discharge of my duties.

Once more, through the loving kindness of Him who hath again restored my health, I rise to perform a service which the Constitution of our Society devolves upon me. Almost a generation of men have passed from the stage of action since its formation, but, thanks to a merciful Providence, some still live who assisted in its organization, and are here to-day. To these and all who have come here to co-operate with us I extend a most hearty welcome.

Amidst the strides of scientific research and a higher state of civilization, which has distinguished the present century, in nothing is progress more apparent than in the advancement of pomological knowledge on this continent. I have spoken of this on former occasions, but now, as we are entering on the second century in the history of our republic, I have thought that a review of what has been accomplished, even at the expense of repeating something which I may have uttered before, would be both interesting and instructive.

THE GROWTH, EXPANSION AND INFLUENCE OF THE AMERICAN POMOLOGICAL SOCIETY, AND KINDRED ASSOCIATIONS.

Frequent allusion has been made to the remarkable growth and influence of our Association.

At the first meeting of the Society, in the year 1848, there were but twelve States represented by delegates, while at our last session in Chicago, in 1875, there were, as may be seen by the Report on Credentials, twenty-eight States, Territories and Provinces represented in person, and nine by letters of correspondence, making a grand total of thirty-seven. In 1848 the attendance was limited by the number of delegates present from these twelve States, and the jurisdiction of the Society by the area which they represented. Now we have on our roll the names of three hundred and thirty-eight members, and its field covers the entire territory from Canada to Texas—from Nova Scotia to California. From nearly all of these States and districts reports are regularly received of the progress and culture therein, with fruits for identification and comparison, and with lists of those adapted to their several localities. And here let us acknowledge with gratitude the noble and generous manner in which the various State Societies and Fruit Growers' Associations have co-operated with our institution to bring about the grand results which we have witnessed.

With the close of the present session the Society will have held sixteen conventions, and will have entered on the thirtieth year of its existence. Three sessions of the Society have been held in the city of New York, three in Philadelphia, three in Boston, two in Rochester, N. Y., one each in the cities of Cincinnati, St. Louis, Richmond and Chicago, to which will soon be added the city of Baltimore. These sessions have been marked by evidently rapid and most gratifying progress, both as regards the information acquired and disseminated, as well as by the improved workings of the Society, and the character and usefulness of its publications. This progress has been essentially promoted by the holding of its meetings in distant cities of the United States.

From this fact the Society has been called a national institution. But it is more than national. It is continental, embracing within its fold not only the States of the Union, but the British Provinces on our borders. Its latitude extends over twenty-five degrees, and its longitude the entire breadth of this continent. Its area embraces almost every variety of soil and temperature, where almost all of the fruits of the various zones may be grown, from the apples of Canada, and the oranges, figs and bananas of Florida, Louisiana and California. It is, therefore, properly styled an American Society. Its field is not merely the American Union, it is our continent. Its men and means have been more effective than were ever before used for the promotion of Pomology. The capabilities and probabilities of its field for progress were never surpassed by any country, affording, as it does, ample scope for testing the fruits adapted to the various climates, temperatures and soils of our widely extended domain.

(To be continued in our next.)

THE

GARDENER'S MONTHLY
AND
HORTICULTURIST.

DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

Edited by THOMAS MEEHAN.

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FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

As we take up the pen to offer a few November hints, the sun is setting in the west, and the whole sky is suffused with orange and crimson, and blue, which alone would make this a world of beauty. But in addition to this profusion of charming interest, the trees begin to vie with the sky above them. On the Sumach there is already a crimson blush. The Dogwood, usually of so bright a green, shows signs of ripeness; and the Kentucky Coffee has actually fallen into its sere and yellow leaf. The Golden Rods and Asters light up the meadows with a red and yellow light, and the azure of the eastern part of the firmament is just dark enough to give the required shade to brilliant beauty. By the time these lines come before our readers' eyes we shall be in the midst of America's most glorious season, and in the midst of a natural enjoyment unknown to the people of any other part of the globe. We, as a whole, hardly appreciate this wonderful beauty. We admire the length of an English Summer's day, and appreciate the regretful manner in which the sun goes down. There is scarcely a lovelier scene in the Old World than the lingering sunset of a Summer evening. But the set of Summer itself with us is still more gradual; and as a month is to a day, so in proportion is the enjoyment of an American Autumn over anything English gardening or European scenery can provide us with. We should not forget this in our efforts at distinctive American gardening. We have scarcely any Spring, for Summer is often on us before Winter has gone, yet we work away at Spring gardening. We envy and strive to imitate the Summer bedding of the English in spite of the fact that the heat of our climate drives us to the mountains, and our flower-beds are scorched up or dried out while we are away. Why not take especially to September, October and November, as characteristically our American gardening months, and arrange our work especially to horticultural enjoyment then. A place however small might have a few colored leaved Fall plants, and in larger places, the most beautiful effects could be made by a judicious grouping of these Fall coloring things. Talk of the perfection to which the English have brought our Rhododendron! Let some one take in hand the artistic arrangement of our Autumn leaves, not on card-board by ladies in scrap-books, or drawing-rooms, but as nature would have them on our lawns and gardens, and we can let the Rhododendron stay. Not stay from out of our gardens by any means, but as the one great glory in English landscape gardening.

But to more practical matters. These leaves have to be gathered up. They are excellent to mix with hot bed material, and where practicable, should be saved for this purpose. They do not heat so rapidly as stable manure, and in this have an advantage as tempering its violence, making it last longer, and maintaining a more regular heat. They are excellent material to put round cold frames to protect half hardy plants.

A board is put up the height of the frame boards, and about a foot or more from them, and the leaves filled in between. If the plants are somewhat tender, the bottom of the frames may be filled in a few feet with the leaves. Much heat is thrown off during the decomposition of the leaves, which though not enough to keep out severe frost, yet modifies somewhat the temperature. These leaves, after they have been two or three years decaying, make admirable stuff for potting and flowers in general.

As soon as the ground gets caked with the first real frost, herbaceous plants should be protected. Though hardy, they will repay this extra care,—mostly natives of woods or grassy places in their native state, they expect a covering of leaves or dry grass. We find dry leaves the best material for the purpose, a few inches is a sufficient depth, a little soil being thrown on to prevent the leaves blowing away. Where such material is not at hand, the common garden soil may be drawn over them, as before recommended in these pages.

One of the last thought of things, too frequently, is to apply manure to flower beds. But it is scarcely less essential to a fine Summer display, than it is to the production of fine vegetables; and certainly as necessary as to trees, or the lawn. Still it should be applied with caution. While a poor soil will only grow plants to a diminutive miniature size, — which, though clothed with a profusion of small, starved-looking blossoms, make no show,—a soil over rich will cause too great a luxuriance of foliage, which is always opposed to an abundance of bloom. In most cases we prefer half-decayed leaves; where these could not be had we would use stable manure. The former spread over the soil two inches thick, or the latter one inch, would form a dressing which, in ordinary cases, should last two or three years. It is difficult to get flowers to do well in even the most favorable soil, if it is liable to hold water to stagnation in Winter. Where flower-gardens or beds exist under such circumstances, advantage should be taken of the present season to have it thoroughly underdrained. It will be more beneficial in the end than the most judicious manuring; it is indeed in itself a powerful means of fertilizing the soil.

The planting of trees will still continue to engage our attention at every favorable opportunity. Many prefer at this season to remove trees in the Winter by the "frozen ball" system. There is nothing gained by this practice. To those unacquainted with this mode of planting, we may as well describe it. Just before frost is expected, a trench is dug around a tree a few feet from its base, leaving the tree, so that with a rope at the top, it can be easily drawn over. A hole is then dug for it in the situation desired. When the "ball" has become frozen through around the tree, it is removed to the prepared hole; and, when a thaw comes, the soil is filled in around it. We have said there is nothing gained by it, and there are many disadvantages. If the tree has been removed a "time or two" before, as most nursery trees have, it will have an abundance of fibres near the stem, and can be successfully removed without much regard to the "ball of earth," either in Fall or Spring. If it has never been removed before, that is a tree growing naturally, it will have no fibres at its base, and so no "ball of earth" can preserve them; so that a tree which can be moved successfully on this freezing system, can be as successfully done without it. The disadvantages of it are that it exposes the injured roots for a long time to the injurious action of the frost and the elements, besides the frequency of the operation being improperly done by several attempts being made at its completion. We have given the system a fair trial, and have done with it. The main object should be to preserve all the roots possible with the tree, keep them moist and preserve from injury, then go ahead and don't wait for frost.

COMMUNICATIONS.

SOME JULY FLOWERING SHRUBS.

BY J. M., PHILA.

To those about to plant shrubs, there is always more or less difficulty in deciding what to plant. The aim usually is to have an assortment to flower one after another throughout the season. There is little trouble to have some to flower in the early months, as the most of the shrubs flower then. At the present time—July—the early kinds of Spiræas are over, and so are the Weigelas, Philadelphus, and many other common kinds on which we depend for the early adornment of our grounds. But there are yet a goodly number which flower now, enough indeed to make our grounds as attractive as in the Spring months. Amongst these still in bloom, but which are past their best, are the Magnolia

glauca, Azalea viscosa, and Itea Virginica. The Magnolia blooms for a long while, one bud succeeding the other, until a month or more has passed. Much more might be said for this fragrant shrub, but that recent writers in the *Monthly* have so fully described it. The Azalea is our native one of the woods, and its waxy-white flowers must have been gathered by many of the young folks in their rambles. But the Itea is not near so well known as it should be, for when covered with its spikes of white flowers it is so beautiful and uncommon as to at once attract the eye.

But to come to those which may be called strictly July flowering shrubs, it will be found the list, though not extensive, is ample. There are quite a lot of Spiræas, the best of the older ones being Billardii with pink flowers in panicles; callosa, pink, and callosa, white, with flowers in a flat head; salicifolia, white, with pink tint, and flowers in long panicles; and paniculata, pink, with flowers in a more bunchy head than Billardii. Then there is the tomentosa, with its light purple flowers, which does not flower until the end of the month or August. We have, too, for July display, the Colutea arborescens, Weigela hortensis nivea, Yucca filamentosa, Hydrangea quercifolia and paniculata grandiflora, Rubus ordoratus, Cornus sericea, Potentilla fruticosa and Vitex agnus castis. The Colutea has nearly done flowering by July, but its bladder-like seed-pods, with their claret-colored tint, make as much display as do its preceding flowers. It is not generally known that the Weigela above named, flowers through the Summer; but they may be cut from it all the season, and very beautiful they are too. The Yucca or Adam's Needle is so common that it seems known to every one. Its long scape, thickly set with white lily-like flowers, makes it a conspicuous object wherever planted. The Hydrangea quercifolia and paniculata grandiflora are both white, the former not so clear as the latter. The quercifolia, flowers in the early part of the month, the paniculata grandiflora not until the latter part. The last named, though but a few years since much known here, has taken a front place in gardens, its beautiful flowers, together with the immense size of the panicles, entitling it to the place it has received. And then it is so hardy and such a strong grower that it cannot be done without. The Rubus odoratus, with its purplish pink blossoms, is very showy. Like other Rubus, it will throw up suckers, and in some places this would be objectionable. Cornus sericea has large flat heads of white flowers, and contrasting with the other shrubs is very nice. The Potentilla fruticosa is yellow, and flowering when this color is scarce in shrubbery, would make it valuable even though it were not the pretty thing it is. It flowers very abundantly, and forms a bushy shrub. The last on the list is the Vitex. This flowers at the latter part of July aud through August. Its prettily divided leaves and panicles of pale lilac flowers claim for it a good position amongst the others. This list is meant as giving some of our July flowering shrubs such as are to be obtained at most nurseries.

EVENING PRIMROSES.

BY WILLIAM FALCONER, CAMBRIDGE, MASS.

These are amongst the most gaudy floriferous and thrifty of late Summer blooming plants, and surely about the easiest grown. I admit that from June onwards they are in their glory, but many species and varieties in late Summer, from increased growth, of necessity become more glorious. Amongst them we have tall growing sorts like b. Lamarckiana and fragrans, and decumbent carpets as in trichocalyx and cæspitosa; white flowers as in the last named two, coronopifolia and speciosa, often changing with age to pink or rose; and few plants have more brilliant yellow blooms than those of Missouriensis and Lamarckiana, besides they are so big—4 to 6 inches across. Nearly all are more or less fragrant, fragrans, cæspitosa, marginata, and eximia, being particularly odoriferous. As a truly hardy and neat perennial, fruticosa var. linearis is one of the best, as little bright yellow flowers being profusely borne all Summer, most lavishly in June and July. All are not equally fond of the night as their name might suggest, for many species are open by day, as, for instance, f. linearis, speciosa, taraxicifolia, and trichocalyx.

Many of our finest Evening Primroses are natives of west of the Mississippi States, as California, Utah, Missouri, and Texas, and consequently several are not reliably hardy. It is advisable to winter the more tender sorts—biennials or perennials in frames, and where practicable, save seeds and raise seedlings annually. So far as I am acquainted they all bloom the first season from early seedlings. Some of the true perennials, and particularly the prostrate-growing ones, are shy seeding in our garden, but the tall growers

seed freely. Missouriensis, linearis, fragrans, Lamarckiana, and biennis, withstood last Winter (40° below zero) unprotected in the open garden, unscathed; cæspitosa survived under some leaves and a wooden shutter, but alongside of it trichocalyx perished. The rest of our sorts are last Spring's seedings.

EDITORIAL NOTES.

Dracocephalum.—In old times we used to grow in our beds of hardy herbaceous plants Dracocephalum Virginiana, and thought it the gem of the collection. Going through Ohio this Summer we saw occasional patches still more beautiful than we had ever seen it under culture, and we wondered more why it is not universally grown. We have two varieties in those gardens which have it at all, one known as D. Virginiana and the other as D. denticulata, which is a much larger growing kind, though botanists generally regard them as but forms of one species. Strictly speaking we should say these have been removed from the old genus Dracocephalum, and are now Physostegia. When in Europe last Summer, we noted a pretty one being grown as D. Moldavica, introduced chiefly



by M. Vilmorin, of Paris. The accompanying little cut will give some idea of its manner of growth.

The Carolina Poplar.—A Western paper says that Dr. Furnas, of Danville, is propagating the Carolina Poplar, "Populus angulata." Here is a case where the benefit of a botanical name comes in. The Populus angulata would make a good shade tree if it were not susceptible to a rust in early Fall, which gives the tree a disagreeable look. It is a rounder headed tree than the Carolina Poplar, which is the Populus monolifera. Our Western friends will do mischief by confounding these two.

Abies Engelmanni.—A writer in the *Gardener's Chronicle* signing the letter "H," and dating from Salt Lake City, speaks of having visited Colorado, and of finding Abies Engelmanni and A. Menziesii, "varieties of the same thing." It is a great pity such errors should continue to be propagated, for, as we have recently stated, there is no close affinity between the two.

Crown Imperials.—These are very showy, and favorite early Spring flowers, blooming in April. They throw up strong stems to the height of two feet, which are encircled at the summit with large pendent bell-shaped flowers, crowned with a tuft of glossy green leaves, rendering them very conspicuous and ornamental. The bulbs should be planted five or six inches deep, in any good garden soil. It is best to let them remain undisturbed for several years: Aurora, orange red; Crown on Crown, red; Large Single Red; Large Double Red; Large Single Yellow; Large Double Yellow; Single Red, with gold striped foliage; Single, mixed.—*C. M. Hovey.*

NEW OR RARE PLANTS.

Clematis Davidiana.—This is a sterling horticultural acquisition, quite "new," a native of Northern China, from whence it was recently introduced into France, and thence disseminated, and this year bloomed with us for the first time, so far as I am aware, in New England. The stems are erect, 2 to 3 feet high, slightly branched, somewhat woody at the base, but the rest herbaceous. The leaves are in opposite pairs, on long petioles, and trifoliate; the two lower leaflets are broadly lanceolate, 4 to 5 inches long by 2 to 2¾ inches broad, and the intermediate one wedge-shaped, with a much longer petiole, and an expansion some 5½ inches long by 3½ inches wide, and all of them deeply toothed to slightly lobed, reticulated on the upper surface and prominently veined on the under. The flowers are ¼ to 1¾ inches across, pale bluish purple, reflexed, but with a tube ½ inch long, and very sweet scented; in fact, in color and form they much resemble common blue Hyacinths. They are produced most freely

in dense terminal and axillary heads and corymbs at every joint from the ground upwards, in one crowded terminal head. Alone I counted 137 flowers, expanded blooms and unopened buds. The lateral branches, mostly in pairs, are often but long-jointed flower-stems, the blooms being gracefully disposed in whorls around the joints, which are closer near the end; and these branchlets are admirably suited as cut flowers. Its blooming period lasts from the end of July till about the 20th of August. We regard it as one of, if not the very best hardy herbaceous ornamental plant of its season. It seems to be constitutionally strong and vigorous.—*W. F.*

Clematis tubulosa.—This species has been in cultivation for upwards of thirty years, nevertheless it is very rarely met with. It is a native of Northern China, 2 to 3 feet high, herbaceous, or nearly so, quite hardy, a good grower, profuse bloomer, and withal a commendable garden flower. Its blooming season is from about the 20th of August till the 10th or middle of September. It has erect, slightly branched stems; opposite, long-petioled, trisected leaves, the leaflets rhombeo-ovate, faintly lobed and toothed. The flowers are bluish-purple, with narrow reflexed sepals, 1 to 1½ inches across, and produced in loose, terminal and axillary cluster-corymbs. —*W. F.*

SCRAPS AND QUERIES.

Gas-killed Trees.—I have, unfortunately, lost two fine trees in consequence of the escape of gas in the street; and in regulating my front pavement, have had to cut down three others. Speaking with Mr. Paul, a short time since, he stated that there was a species of Poplar tree,—he could not give me the name, but the kind of tree could be seen growing on the corner of a small street running north from Vine, between Eighth and Ninth streets,—which he understood the gas would not affect. I think he said you were aware of it; and my object in writing is to inquire if you could furnish me with its proper name, or the name of any tree the gas will not kill.

[The roots of any tree whatever, will be killed by the gas escaping from the mains. It is no use to plant anything where trees have been thus killed, till the leak has been stopped. Notify the gas company of the leak, and they will stop it. Then plant. In equity the gas corporation should be held responsible for damages. There is little excuse for these leaks. It is as possible to make a pipe tight below as above ground.—Ed. G. M.]

Night Blooming Cereus.—Mrs. Harriet Beecher Scoville, Norwich, Chenango county, N. Y., writes:—Reading, this evening, an article or note in the September number of *Gardener's Monthly* on Night Blooming Cereus, alluding to it not always being night-blooming, I am tempted to give my experience on the same topic. I have a large plant of the flat thornless-leaved variety. I know no name for it. But it has a *large* white exquisitely fragrant and beautiful blossom. Mine flowered this season for the *third* time or year. The first in June, it had three large blossoms open at one time. The flower began to open before dark, was wide open before 10 o'clock P. M., and was wide open in the morning. I cut two flowers and sent out, and heard that they did not close until *full* noon, the third I kept on the plant, and it also remained open until between 12 and 12.30 midday, when I removed it from my greenhouse, facing south, into my darkened dining-room, thinking to keep it longer, but it closed directly after. A friend has one of the same variety, which once opened during her absence at church one Sabbath *morning*, and I *believe* remained open all that day and I *think* closed at night,—of that I cannot speak with certainty. There are a number of the plants in our town, and there are generally a dozen or more blossoms seen each Summer. One friend had ten open at once. Some time I may be tempted to give an account of my greenhouse, which I heat by a coal base-burning stove *in* the greenhouse, unless this is so long that you are wearied.

[Cereus crenatus, C. latifrons, and C. triangularis, as well as *the* night-blooming Cereus, C. grandiflorus, open at night, and some, especially the last, continue to about noon next day. The true night-blooming Cereus has round, rope-like stems; C. triangularis is three cornered; C. crenatus has flat stems with pretty notched edges, and latifrons has stems so thin that they seem like leaves. We should very much value the experience on heating the small greenhouse. It is a subject of interest to a large number of our readers.—Ed. G. M.]

Irish Junipers, &c.—W. W., Hillsboro, Md., writes:—Although not a subscriber to the

Gardener's Monthly I am a constant reader of it, as my employers have always taken it. In the last number, a correspondent inquired as to soil causing Irish Junipers to change their habits. You say you do not know that soil makes any difference in the compactness of their growth, but I am fully convinced it does. Before I came to this place, in Caroline county, Md., I worked for R. Peters, at Wilmington, Del. He had Junipers of very compact growth, and all his grew in this way. A lot of young plants raised from them and sent to us here have made trees of spreading habits, so much so as to be more like Swedish Junipers in this respect than like the Irish. The soil here is a light loam. It is not uncommon for the Irish Juniper to lose its compact growth when transplanted into other soils. Your notes on Early Peaches were very interesting to me. Every section of the country seems to have a candidate for the position of the earliest. There will be one from our town, of course, when the time comes, as we must not be behind the age. Williams' Early is its name.

Preserving Roses in Winter.—L. F., Belleville, Illinois, writes:—My last year's query of protection of Tea Roses—to cover such with coal ashes—I have tested, and the result has proved satisfactory. All tender Roses, Pampas Grass, Oleanders and Tritomas I bent to the ground and covered entirely with coal ashes. With the exception of a few very small Tea Roses, they stand the Winter very well. Coldest day, 6° below zero.

Standing Cypress.—A. G., a lady amateur, says that unless this Cypress is wintered in compact soil it will freeze out; or that having a loose soil in her garden, she was not able to keep her plants during their first Winter. Early in March, when sowing seeds in advance for her garden, she mistook the seed of Standing Cypress for those of another plant, and sowed them. She soon discovered her mistake, but saved the plants, and in due time transferred them to the garden, where, to her surprise, they grew quite tall and bloomed finely the same Summer (this 1877), and when the writer saw them in August they were nearly or quite three feet in height. As it is, in some situations, exceedingly difficult to keep them through the first Winter, would it not be well to try the plan, accidentally discovered, which assures success?

Cut-leaved Grape.—A Denison, Texas, correspondent writes:—I send enclosed a leaf to know if it is that of Ampelopsis incisa, true. Parties are selling it for that here. The leaf does not seem to me so thick as one would expect from your description in the *Gardener's Monthly*.

[The leaf sent appeared at first like the Ampelopsis bipinnata, but it is really a cut-leaved variety of the European grape, and not Ampelopsis incisa.—Ed.]

Green House and House Gardening.

SEASONABLE HINTS.

The greenhouse will now begin to look more natural, after having had the stock housed last month. With many plants having probably been taken up out of the open ground, many dead leaves will daily appear, requiring frequent removal; neatness is one of the chief beauties of a greenhouse. Acacias, and Australian plants generally, with hard wood and delicate roots, should be placed at the coolest end of the house, where little water will be required. These plants should not be watered often; but when they are, it should be thorough. Frequent waterings soon render the roots of these plants unhealthy, when it is very difficult to restore them to vigor. Whenever the foliage becomes of sickly yellow hue, the best plan is to plunge the plant in a larger pot, filling the space with moss,—and when the plant requires water, give it only through the moss, unless the plant seem to become so dry as to suffer, when it should receive one thorough watering. Very little fire should be applied to a greenhouse,—just sufficient to keep it about 45°. Unless very far north, but little fire-heat will be required this month.

Window plants should not be kept very warm at this season. They should have all the sun

and air, and as little of the artificial heat of the room as possible. These remarks apply especially to Mignonette, which is very impatient of in-door confinement. Succulents, such as Cacti, are excellent window plants in this respect, as the dry air does not affect them. To keep the air about the plants moist, is one of the secrets of window culture. Some who have very fine windows well stocked with fine plants, make glazed cases with folding doors of them, by which, when the room is highly heated and very dry, they can be enclosed in an atmosphere of their own. Where it is not convenient to have the window enclosed from the room by a folding door, much benefit has been found by using a simple curtain. This will prevent injury from the coal or illuminating gas, which is often as destructive as the dry atmosphere.

Aquariums are now so well understood, as to be in a fair way to become essentials in the room-gardening of all persons of taste. Growing plants, fishes and water reptiles are placed in the same globe or tank of water, and the gases which the fish reject are the food of the plants; while the plants, on the other hand, prepare the elements necessary for the health of the fish. By this beautiful principle of reciprocity, both plants and animals remain in perfect health, without the water scarcely ever being changed. A tank for plants and animals might form the base of a pretty parlor ornament, a central portion consisting of a case for ferns and similar plants, and a cage for birds on the top.

COMMUNICATIONS.

TUBEROUS ROOTED BEGONIAS, CYCLAMEN PERSICUM, &c.

BY W., NORFOLK, VA.

Stepping into the small greenhouse of David Barker the other day I was astonished at his magnificent display of new tuberous-rooted Begonias with handsome foliage and in full flower. They are chiefly from choice hybridized seed; of great variety in color, from pure white to deepest scarlet, many salmon and orange tinted, with occasionally a strong tendency to produce double flowers. I doubt if such another collection of this charming novelty is to be found in this county. When better known, they must become as popular here as in Europe. As far as tested they are most suitable for bedding plants, surpassing the Geranium in their beautiful foliage and large flowers of richest hues, and will soon become a great acquisition to the garden and lawn. In England, they have already superseded it to a great extent, being more vigorous and floriferous.

Mr. Barker has been fortunate in saving a fair quantity of seed, carefully hybridized, from his best specimens, which he will offer this season, and when it is borne in mind that large flowering plants are grown from seed in a few months, the value of the tuberous-rooted Begoina cannot be too highly appreciated.

Mr. B. has also devoted much time and attention to the Persian Cyclamen, of late more generally cultivated in this country. His bulbs, from the best strains of European seed, already show foliage of immense size and exquisite beauty, a foretaste of the rich display of bloom so soon to follow.

I cannot omit the bare mention of his choice Gloxinias and hybrid Petunias, the latter superb, often five feet in height, and of every conceivable shade and variety of marking.

This choice collection of these and other novelties his little greenhouse affords, will well repay a call from those who are favored with access to more pretentious establishments.

ALOCASIA LOWII.

BY MANSFIELD MILTON, CLEVELAND, O.

One of the grandest, beautiful leaved plants in cultivation. There are some very beautiful species in this genera of plants, but this stands pre-eminent. The upper surface of the leaf is a deep green, the mid-rib and secondary ribs an ivory white, the under side a soft dark purple. It is a native of Borneo, and therefore requires a high, moist temperature to fully develop its distinct markings. It requires for soil, lumps of peat, charcoal, fibrous loam and pieces of sand stone; during its growing season abundance of water, and when at rest it should be kept just moist enough to retain its foliage. It is not so easily grown as most of the Alocasias in cultivation, but when convenience is afforded a plant of it should be seen. In a dry atmosphere the red spider is a deadly enemy to it, often doing considerable damage before its presence is observed; frequent spongings will keep the plant healthy and free from insects.

BRUGMANSIA SUAVEOLENS IN THE FLOWER GARDEN.

BY W. FALCONER, CAMBRIDGE, MASS.

At Mr. Motley's, at Jamaica Plains, I lately saw this fine old favorite in good condition. The plant is four years old and flowering in a sub-tropical flower border, crowded on every side by neighbors—Ficuses, Cannas, Solanums, &c. Mr. M. informs me, however, that during the Summer time he saw as many as one hundred expanded blooms on it at one time; and when I was there (September 24th), in addition to the flowers and buds on the plant, I saw a dozen of immense white trumpets that had just been cut from it.

The plant is lifted on the approach of frost, cut back and potted, and wintered in some out-of-the-way corner in a greenhouse, where it can be kept nearly dry.

DOUBLE GERANIUM, "BISHOP WOOD."

BY GEO. S. WOODRUFF, MOUNT AIRY, PHILA.

I have grown this new Geranium side by side with another from Veitch's collection, called Guillon Mangilli, and have been unable to find any difference between them. Others who have grown both give the same testimony, and I suspect that by the time a few enterprising florists have "substitued," a few times, the one for the other, the purchaser will not be able to tell which he has. As Mr. Harris is above suspicion, and doubtless obtained his Bishop Wood from seed, we have here an interesting instance of independent workers arriving at the same result about the same time, as has often happened to inventors and discoverers.

But another interesting thing is, that I have obtained seed from these and some other new doubles, all similar to Asa Gray in their dwarf habit and semi-double flower, the latter, however, being much larger than those of Asa Gray. Of these "Auguste Willaume" is of a very peculiar shade of red, nearly vermilion, and "Edward Lequin" somewhat like it. "Asteroid" is a rich crimson scarlet. A splendid pink one, "Noemie" (namy), also seeded, as did Eugene Bandouin, but the seed did not mature, owing to excessive rains. The same thing happened with George Sand and Wilfred, both improvements on Aline Sisly.

I think that with more uniform moisture ripened seed might be had from all these.

The whole series is so much superior in habit to the rank-growing doubles to which most people are accustomed that they desire mention.

Another of similar habit, "Meteor Flagg," (!) has flowers as perfect as roses, somewhat like "Le Negre," but *unlike* that, perfect in form and produced freely all Summer.

Now that I have made this article so much like a catalogue, I might as well mention that "Happy Thought" seems happy in either wet or dry weather.

EDITORIAL NOTES.

TASTE IN FARM HOUSES.—An exchange tells us that Colonel Ingersoll wants to see farmers' wives dress with more care and better taste, which would cost no more than their present style, and above all, he wants to see them pitch their miserable little cook stoves out of the window and get a decent range, over which they can cook without cooking themselves. We should like if he had added a word on the floral surroundings. No one knows how a neat little garden adds to the pleasures of life. But we hardly know whether it is right to address this counsel to women. If they are careless or slovenly it is too often the men's own fault. A woman when married usually becomes what her husband makes her. If what she does seems not to interest him, it is natural that she become indifferent. If husbands—young husbands especially—took more interest in their wives' dress and neat appearance, the cook stove or the flower garden, we will guarantee there would be less "farmers' wives" of the class Col. Ingersoll refers to.

PRESERVING FLOWERS FRESH.—The *Worcester Spy* says:—"A friend of ours received a day or two ago through the post-office, from Olympia, Washington Territory, a roundish, irregular package, which on examination proved to contain a large potato. Further investigation showed that the potato had been cut in two and the inside scooped out, and in the cavity were found flowers and leaves, which, as he learned by a note previously received, had been picked in a garden in the open air on the 26th day of December. The flowers,—pansies, geraniums, and others,—were as fresh and bright as if they had been gathered within an hour, though their journey across the continent had occupied fifteen days.

Olympia is in about the latitude of Quebec, though its Winter climate is not more severe than that of Memphis." We refer to this because a correspondent of the far west sent us some flowers for name in this way, and they came in as good condition as if fresh gathered. As we had not the material for full investigation just at hand it was left for a week, when the flowers were still found fresh and good. There is just moisture enough and no more in a hollow potato to keep flowers well.

The Richardia Æthiopica.—This is generally known with us as the Calla Lily, the plant in former times being regarded as a true Calla. The common name in English works is "Trumpet Lily."

Grafting Chrysanthemums.—A correspondent of the *Garden* says:—"At the Royal Nurseries, Slough, I observed the other day what to me seemed to be a novelty in Chrysanthemum growing, viz.: over 200 fine plants worked as standards on three-feet stems, several sorts which bloom simultaneously being grafted into one head. Only one plant was grown in this way last year, but the effect which it produced was so striking as to induce Mr. Turner to cultivate Chrysanthemums largely in that manner." The stems of the Chrysanthemum dying after flowering would seem to make this plan a great deal of trouble for a short gratification, and then we should think as good an effect could be had by growing several kinds in one pot.

Rose Blooms.—Rose "buds," as our florists call them, are advertised in the London papers at $2 per one hundred.

Lord's Greenhouses.—At several places, recently, we have seen greenhouses by Mr. Lord being erected, and they seem to give entire satisfaction in quality and price to the owner who pays for them, and in adaptation to plant and fruit growing by the gardener who has to work them. The peculiarity of Mr. Lord's work is that the parts are all made at his factory, and the house is speedily put together by Mr. Lord's own men. Many persons would have greenhouses but for the difficulty of getting local builders to understand the wants of plant growing. This enterprise of Mr. Lord's, therefore, we regard as a public benefit, deserving of all the encouragement which those who wish well to horticulture can give it.

SCRAPS AND QUERIES.

Disease on the Marechal Neil Rose.—S. S. P., Philadelphia, writes:—I am a very constant reader of the *Monthly*, and on the look-out for any new diseases that affect plants, but thus far do not notice that any of your correspondents make complaints of any insect or disease that attacks "Marechal Neil Rose." I have now been fighting it ever since that glorious rose has been out, but do not meet with the least success in checking it, notwithstanding I have tried turpentine, petroleum and linseed oil. It makes its appearance in the shape of knotty excrescences, which extend below the bark, and in the course of time kill the plant. It does not seem to affect other varieties of roses, as I have tried budding it, and the trouble continues, but always on the Neil, the stock not being in any way touched, and generally prefer old and well-established plants. I have one plant now covering a space of fifty or sixty feet, that last Spring bloomed four or five hundred roses, and it is going like all others, without the least ability to save it. I have heard lately that the troublesome customer is the same insect that attacks the grape vine in France. Have you heard anything of it?

[We have never heard of this before. Have any of our readers had a similar experience?—Ed. G. M.]

Antipodal Hyacinths.—A correspondent asks about the antipodal Hyacinth vases, in which one Hyacinth is represented as growing down into the water, and another above it grows right up into the air. We have not seen these, but the fact is vouched for by those whose evidence we consider as good as our own. But if any one can tell us something of his own knowledge, we should be glad to know of it.

Heating a Small Greenhouse.—G. W. H., Belvidere, N. J., writes:—As a subscriber to the *Monthly*, I take the liberty of asking you for advice in regard to the best plan for heating a small greenhouse which I wish to build. I propose building it about fifteen feet long by ten feet wide; location, dry gravelly soil, lean-to only two feet above ground in front. Exposure south or a little east of south. Object, to keep plants in a healthy growing condition over Winter and for propagating in Spring for bedding out. How would a brick furnace and flue, with a cylinder for a base-burning stove inserted in the

top of furnace answer to keep up a steady heat? Would terra cotta pipe answer for the flue? Would it be best to carry flue around the house, having the chimney over the furnace, and a direct draft for use in starting fire? What should be the rise of the flue per foot of height? I have had and used a furnace in a greenhouse, burning soft coal, but have no experience with hard coal.

[There is less danger from hard coal than soft coal. The gas may escape from the base-burner in the house. It would be best, if possible, to have the furnace-door on the outside. It is a good idea to have the chimney return and go up over the furnace; it helps the draft. When one has experience in terra cotta flues they do very well, but those who are not experienced complain. In our houses we have had these pipes for fifteen years, and would have no other; but for those who are not experienced in management, a brick flue is best. It may run on a level, if the draft is made good; try running the chimney over the furnace.

NEW OR RARE PLANTS.

Pelargonium—New Life.—We are indebted to Mr. Chitty for the use of the following engraving of this interesting new Geranium, an account of which from an English paper, we have already given.



PELARGONIUM "NEW LIFE."

Tuberous Begonias.—Mr. D. Barker, Norfolk, Va., writes:—I have this day mailed to your address a box of the "tuberous-rooted Begonias," which I hope will reach you in safety.

[These were beautiful, warranting all we said of them in our last. It is so seldom that our own people take in hand improvements, that when we find one going along and keeping pace with Europeans in floral culture, we are glad to give every encouragement. We noted several collections of improved tuberous Begonias in England last year that were considered "extra strokes of luck," but these of Mr. Barker's were the equal of any.—Ed. G. M.]

FRUIT AND VEGETABLE GARDENING.

SEASONABLE HINTS.

So much has been said in this journal on the proper preparation of the soil for orchards, that it need not now be repeated. We should only say, that a light dryish soil is the best to choose for the peach. The pear does best on a strong loamy soil. Plums much the same as the last. The apple prefers a heavy loam, if on limestone so much the better. The cherry does well in soil adapted to the peach.

If, however, a fruit orchard is dry and properly top dressed annually, there is not much difference in the value of soils for fruit orchard. With rich decaying vegetable matter abundantly supplied to the trees, they will do well enough in most kinds of soil.

Whatever pruning trees may require, is best done early if one have the time. On this account, however, it is generally deferred to towards Spring when there is more leisure.

Probably most of our fruits do best in partial shade. The gooseberry and currant certainly do. The former must have shade; and if on the moist northern aspect of a wall, so much the better. The raspberry prefers a rather moist soil, and partial shade.

Where currants, gooseberries and raspberries are not to be disturbed, old low stalks thrown thickly in about the plants and allowed to remain and rot away, keep the roots cool, and make a condition of things in which these three kinds of fruit luxuriate.

In cultivating raspberries on a large scale they do best in hills, as the cultivator keeps them from crowding each other so much. For garden culture they are better in rows, the suckers to be kept hoed out occasionally as they grow; enough only being left that will be required for fruiting next year. Where canes are required for new plantations, of course a portion of the crop must be sacrificed to the suckers.

In choosing pears, select those that have been budded close to the ground, as when they are replanted the stocks should be buried an inch below the pear scion, which prevents the attacks of the quince borer. If a long stem has to be buried, the usual consequences of deep planting result, and do as much injury as the quince borer. Also in choosing, select, if possible, plants that have been raised from cuttings; for layered stocks have almost always a long, deep tap looking root, on which dwarf pears do not do well. If we have to use such dwarf pear trees, better shorten some of this long trunk root before planting. Never plant what appears to be the stem of a tree far beneath the surface, under any circumstances, for disease will be most probably an ultimate consequence.

In making new vegetable gardens, a south-east aspect should be chosen, as far as practicable. Earliness in the crops is a very great desideratum, and such an aspect favors this point materially. Too great a slope is objectionable, as inducing to a great run of water in heavy rains. The plots for the crops should be laid off in squares or parallelograms, for convenience in digging, and the edges of the walks set with box edging. If water can be introduced, it is a great convenience.

Sometimes broccoli does not head before there is danger of frosts, especially if growing vigorously. If taken up with small balls of earth, and set in a damp cellar, they will still perfect themselves.

Asparagus beds, after the tops have been cleared off, are better covered with litter or stable manure. The plants shoot easier for it next season.

When the ground becomes frozen, or no other work offers, preparation can always be made for advancing prospective work when it arrives. Bean-poles may be made; and if the ends are charred, and then dipped in coal tar, the commonest material will be rendered nearly equal to the best cedar.

COMMUNICATIONS.

WHITEWASHED PEAR TREES.

BY J. S. COLLINS, MOORESTOWN, N. J.

The whitewashed pear trees referred to in a recent issue of the *Monthly* under the head of "Proceedings of the New Jersey State Horticul-

tural Society," were not whitewashed with a view of preventing blight, but to clean the bark, it acting apparently on the same principle, and perhaps nearly as well, as a wash of soap and water. The whitewash was applied early in Spring each year on the trunks and large branches with a common whitewash brush, and I do not consider it had any effect on the trees blighting, either one way or another. Some Lawrence trees that had formerly been entirely exempt from blight, were attacked and ruined in 1876, the year of second application.

THE NORTHERN RANGE OF WALNUT GROWING.

BY MR. ROBT. COIT, NEW LONDON, CONN.

In a late number of the *Gardener's Monthly* some one inquires how far north the English Walnut will mature its fruit. I have this tree in my garden here, which bears and ripens nuts every year. This year the crop is larger than ever before, amounting, I should think, to 1½ or 2 pecks. The tree is at least twenty-five years old, and has been in bearing some eight years. It is sheltered on the north and west by buildings. But in the garden adjoining mine is another English Walnut tree, exposed in all directions. It is an older tree than mine, and has ripened crops of nuts, more or less sparsely, for twenty years. The latitude of New London is 47° 21' north.

APRICOTS IN CALIFORNIA.

BY "BERYL," SAN DIEGO, CAL.

In the *Gardener's Monthly* for July, 1877, I see a short article—"Apricots in California"—speaking of the failure of said fruit there this year, which suggests, the "curculio" as being the possible cause of the failure.

I have been over eight years in the nursery business in this State, and have never seen or heard of said pest yet.

Peaches and apricots are almost a total failure south of San Francisco this year, and although many seem in doubt as to the cause, I have but little doubt that the unusual *hot* weather in January was the cause of it, the thermometer standing at 80° to 87° in the shade for a good part of three or four days. The bloom-buds on my peach trees swelled as though they were going to bloom, and the chilly weather afterwards stopping the flow of the sap killed the fruit, I believe. Most of the peach trees remained dormant from the middle until the last of June. Many of the limbs have died about half back, but now the new growths are quite vigorous in most of the trees, but some of the trees that are leaving out are dried on one side as though scorched by fire. What do you think is the cause of failure, if I am wrong?

Some five years ago I had an orange tree completely girdled by cut worms, which grew more than two feet afterwards, but withered as though it had been cut off as soon as the upward flow of sap ceased. The puzzle to me is how the thing could grow after being girdled.

[A layer of wood is formed annually. The new wood each year is generated from the wood of the last. These annual layers are alive for several years, varying according to the kind. Sometimes the act of girdling kills these usually living layers at once—the trees die; but sometimes they live, and their crude sap will be drawn up for several years—as long as they live—enabling all above the girdled part to keep in growth for that time.—Ed. G. M.]

GRAPE CULTURE UNDER GLASS.

BY JOHN DONN, FOREMAN TO P. HENDERSON, JERSEY CITY HEIGHTS, N. J.

I read your paper, one copied from the London *Journal of Horticulture*. The writer's practical suggestion holds good in some points; in others my experience differs. I will therefore reply to the remarks as arranged, which begin—Thinning the shoots: I disbud when the eyes have pushed about an inch, and remove all but one, the strongest. I infer that if it don't produce a bunch the weaker ones will not. Crowding the wood in fruit trees is injurious, equally so is thinning, to the same extent as practiced in Great Britain. Sun and light is stronger, and more foliage is required to keep from scorching. I find no difficulty in thoroughly ripening the wood in a cold grapery, as far north as New York. Stopping the shoots: My plan, and one I also find answers well, is to pinch every shoot, sometimes three or four eyes above the bunch and even more if there is any show for the leaf to develop without overcrowding. Also, in pinching the lateral shoots, I leave two or three eyes instead of one, but am always careful toward the middle of October to thin out gradually as the

days get shorter. I never allow shoots to get stronger than I can pinch them off with thumb nail and forefinger. I find no ill effects from leaving the leading shoot grow till it reaches the top of the house, then turn it down to ramble at its will. In a span-roofed grapery under my charge the shoots have reached the floor, and are growing up again. The effect is pleasing, and I think it has a tendency to keep the roots in a healthy growing state. Tying the shoots: I concur in the method of tying, but would here remark that the wires should be at least twenty inches from the glass. Thinning the bunches: The remarks are in accordance with my practice; the only exception is with such varieties as white Muscadine and the Frontignaus. I leave one bunch on each shoot without bad effects; they are smaller kinds and the latter at least is a strong grower. Syringing: Squirting with a hand-syringe is laborious where grapes are extensively grown. I find a portable garden engine the most effective. When washing the foliage is required I like to take the advantage of a gust for the operation, when plenty of rain-water can be had. Hydrant or spring water leaves a mark on the bloom of the fruit, more or less. In the grapery above mentioned, there has been no water used on the foliage prior to blooming, and the foliage is perfectly free from all insects. Water can be used more freely on the surface inside than in the United Kingdom. Watering: Where borders are inside entirely, which is best in this country north of Baltimore, if ripe grapes are wanted by second week in May, abundance must be given as recommended. Where parties are satisfied with ripe grapes by middle of July, outside borders answer the purpose. My experience is, the roots will seek out where they can get; they might work inside where they get encouragement to do so. Practical men in private situations, "as a rule here," don't get the assistance that is given in Great Britain, and there are many points in grape-growing they cannot do justice to for want of help, etc. Yet there are a good many operations done in connection with grape-growing there, could be done without, or in a great measure simplified, considering the extreme changes of climate and too often the want of necessary help. Methinks not a few who follow the profession will think with me, that cultivating the grape-vine under glass in Great Britain is one thing, and in America another. Still I will not say, but there are advantages here, as well as disadvantages; with the exception of giving the outside borders a slight watering with manure water, say twice in the season, is all the attention I have been able to give in that way, yet have had good crops of grapes. There is yet a great deal to learn, and more points to be observed than have been discussed in those papers —I mean in regard to this country. "If you desire," I will relate several points commendable, which experience has taught me, in another paper. [Please do.—Ed. G. M.]

A PROMISING ORCHARD.

BY MR. A. C. FOWLER, PAN-HANDLE, W. VA.

I see by a late *Monthly* a notice of trees being killed by applying oil to prevent rabbits from injuring them. I had a lot of apple trees greased with lard to keep rabbits from them, and the bark came off where they were greased, and new bark came on a part of them. A neighbor rubbed carbon oil on a fine lot of trees to keep the rabbits from them and the next Summer the trees were as dead as if they had been kept in a barn. I have planted thousands of trees, and seldom fail to have them grow finely. If I want to have a tree make a fine growth, I tie hay or straw from the branches to the ground. I have saved some valuable trees in that way that I do not think could have been saved any other way. I am experimenting with about two thousand pear trees, planted in different soils, exposures, and planted different depths; also, am doing what I can to stop the blight, and think I am succeeding. This will be my third year, and if I lose as few trees this year, I will give you my way of prevention.

EDITORIAL NOTES.

Fruit-growing as a Business.—The *Country Gentleman* reports some interesting discussions at the New York State Fair on these subjects. Mr. Hooker thinks there are four and a half millions of acres in fruit in the Union, and the product equal to half the value of an average crop of wheat. Like every other business, however, it required hard work and intelligent business habits to make it a success.

The Phylloxera in Europe.—They have an International Phylloxera Congress in Europe, and it sat recently in Susanne. It has no light task before it. Apropos of Phylloxera, an asso-

ciated press dispatch carried the news to the morning papers that the authorities at Washington believed that the grapes in New Jersey were really infested by Phylloxera, and that the government would probably take steps to look into it. Similar ridiculous dispatches as to what the government proposed to do in agricultural matters, have been given to the public of late. It is not fair to hold the Department of Agriculture responsible for newspaper dispatches. No doubt what the Department has done, or will do, in these matters has been misunderstood by the newspaper men. A very slight change in phraseology will often make a sensible thing seem absurd; and the Department at Washington must have known from the labors of Riley and others, that the Phylloxera was a very bad thing. There is, no doubt, some injustice done the Department in these dispatches.



La Versailles Currant. —"John," Poughkeepsie, N. Y., writes:—"Anxious to plant only a few of the best Currants, I inquired of a friend who replies, 'set out only the Red Dutch.' Another recommends the Versailles, and a third the Cherry, while an agent from Rochester tells me the last are both the same thing. What do you say?"

[Taking all in all we should plant the Red Dutch in preference to all others. The Versailles is a very nice fruit, with a long bunch and large berries, but hardly so good in flavor as the Red Dutch. The Cherry is a short bunch, with large and few berries, and with a very acid juice. We give an illustration of the Versailles, by which you will readily see the distinctness from the Cherry.—Ed. G. M.]

Utah Hybrid Cherry.—E. Y. Teas, in *Country Gentleman*, has a good word for the Utah Hybrid Cherry. It is a mistake to call it a hybrid. There is no evidence that any such hybridization was attempted. It is simply a natural improvement on the Sand Cherry, Cerasus pumila, and was found in Utah by Mr. J. E. Johnson, though not recorded in any botany of the territory. It is a much stronger grower than the normal Sand Cherry, and Mr. Johnson may well be pardoned for considering it a hybrid, and giving it out as such.

Mr. Teas justly remarks that it has suffered through the over-zeal of agents, and the high wrought comparisons with other fruits. While "some like apples" and "some like oysters," there is no reason why some will not like the Utah Cherry on its own merits.

Linseed Oil on Pear Trees.—A. C. L., Madison, Ind., writes:—"I recently killed two fine pear trees with an application of linseed oil." As we know of many trees that have been benefited instead of injured, it is an interesting question why these varied results. We have made, therefore, special inquiry into the oil question by one in the secrets thereof, and we find that there are three kinds of linseed oil in the market—one, the pure extract of flaxseed, the other *half petroleum*, and the third our informant could not tell exactly what. But the petroleum explains. Such oil as that would certainly kill the trees.

Profitable Cherries.—Near all our large cities the large sweet cherries are very profitable. Very little really nice fruit comes to market —when it does, it brings good figures. But taking all things together, the Early Richmond is the most profitable variety. It is more certain to yield a full crop than any other kind, suffering less from the curculio and diseases than the others. The black knot is its greatest enemy,—but this is easily kept down by continual watchfulness with the pruning knife in hand.

Locality for Orchards.—In almost all cases it is the universal experience that orchards are more certain to do well where the spot chosen is somewhat higher than the surrounding land. Often enough the fruit will be killed by Spring frosts, when those on land fifty feet higher will escape. The cold air always sinks, and if there is any low spot for it to sink in, the higher of course escapes. Often trees on river-banks escape, when others are injured, and people think it is the contiguity to water, when it is really the elevation—the cooler air being drawn to the river-bed.

The Dwarf Service Berry.—A correspondent inquires what is this plant? We do not know

certainly, but suppose it is what is known in the East as June Berry, Shad Berry and Indian Cherry, and the botanical name of which is Amelanchier Botryapium. If we are wrong we shall be glad to be informed by those who know.

How many Peach Buds a Day.—It has often been said that workmen in the North do a great deal more work than do those of the South, and the following advertisement in the *Home Journal* of New Orleans strikingly illustrates the truth of the assertion:—"Wanted, a good nurseryman to bud four thousand peach trees by the day, month or by the job, etc." We fancy there are plenty of men here who would be glad to have four days given them to do the budding in, instead of a month or more, as proposed by the advertiser.

Caroline and Belle Strawberries. — We noted the fact some time since that the Massachusetts Horticultural Society had praised these seedlings of Mr. Moore, of Concord, Mass. The Massachusetts papers speak highly of their behaviour this year. They say they are not only of large size and abundant bearers, but are also of very superior flavor.

Grape Rot in Missouri.—Isidor Bush, writing from Missouri, says:—"Taylor and Herbemont Grapes failed almost totally this season again from rot—in fact nearly all varieties—and unless a remedy or preventative against this serious evil is discovered, or that it disappears, grape-growing here has seen its last days."

Bradt Seedling Russet Apple.—At a recent meeting of the Toronto Fruit Growers' Association, with a large number of good seedling apples before their eyes, highly endorse this, and ask for its dissemination. This is high praise.

Indian Fruit and Nut Culture.—A notable feature of a recent meeting of the Toronto Fruit Growers' Association was the presence of one of the chiefs of the Tuscarora Indians. He has entered largely into the culture of nut-bearing trees, and gave an interesting account of his success to the meeting.

A Texan Peach Grower.—Dr. Smith, of Palestine, Texas, is said to be not only a great peach grower, but to be a raiser of great peaches, and also to have demonstrated that Texas is one of the best peach-raising States in the Union.

Crawford's Early Peach in England.—We find in the London *Journal of Horticulture* the following tribute to this popular American variety. New Jersey ought to be proud of the world-wide reputation of her famous seedling:—"Two cultivators from different districts inform us that Crawford's Early Peach has resisted the inclement weather of the past Spring better than most other varieties, and that this handsome looking American sort is bearing good crops on the open wall."

Increasing the Size of Mushrooms.—Not long since we noted the fact that nitrate of potash was said to increase the size of Mushrooms. How large, we now learn from the following in the *Record*:—"We learn from the *Garden* that at a recent meeting of the Horticultural Society of France an enormous Mushroom was exhibited by M. Courcier, who took occasion to point out that equally remarkable results can often be obtained by watering the beds on which these fungi are grown with a solution of nitrate of potass. Under this treatment a bed usually producing Mushrooms of but very small size will frequently bear specimens upwards of twenty centimetres in diameter in an incredibly short space of time. Occasionally they attain really gigantic proportions, and Mushrooms weighing as much as seven pounds each have been grown in ordinary beds by the aid of such solutions. Nor is this increase in size attended with any loss of quality, the monstrous specimens thus obtained being equally palatable with those of more moderate dimensions. The simplicity of the plan is not the least of its recommendations, since any Mushroom grower possessed of a handful of saltpetre can test it for himself without either trouble or expense."

Best Maine Apples.—Rhode Island Greening and Tallman's Sweet are regarded as the best Maine apples by the Maine Pomological Society.

Peaches in California.—Messrs. Shinn & Co., the eminent nurserymen, have demonstrated that in Alameda it is not essential to irrigate peach orchards in order to insure regular and full crops.

The Scuppernong Grape.—Mr. Transou informs us that this variety is popular in the South for the table as well as for wine; and that improved kinds occasionally appear.

Nectarines.—We believe the Nectarine does not succeed anywhere in our country except when raised under glass. They rot more easily, or else are greater favorites with the curculio than is its brother, the peach. For house-culture,

however, they are more popular than the peach in many instances. Thos. Rivers still pays attention to new nectarines. Lord Napier is one of his latest.

Poisonous Mushrooms.—"The neighborhood of Agen has," says a correspondent of the *Garden*, "been placed in a state of consternation by the death of eight members of the same family through eating Mushrooms. This fatal example is a warning for those who persist in the use of Mushrooms of doubtful quality." A much larger number of species of Mushrooms are edible than people imagine, but unfortunately few are intelligent enough to distinguish them. Our friend, John Haines, assures us that the common large puff ball is wholesome as well as delicious, in the form in which he cooks it.

Destruction of the Potato Beetle.—The *Gardener's Monthly* was the first to recommend the use of Paris green for the destruction of the potato beetle, and naturally takes an interest in anything that will be an improvement on it. The following we find in the Boston *Journal of Chemistry*, and we shall be glad if any of our correspondents will report next year what success they may have with it:—"Good authorities condemn the use of the poisonous Paris green for the destruction of potato bugs, and suggest carbolate of lime instead. They say that the latter is equally fatal to the bugs, while it is harmless in other respects. Farmers will do well to give it a trial."

NEW OR RARE FRUITS.

Mr. Ricketts' Grapes.—The seedlings of Mr. J. H. Ricketts have been exhibited at many places this season, and always receiving high praise for their fine appearance and delicious flavor.

The Lady Washington Grape.—By kindness of Mr. J. E. Mitchell, we have on our table a bunch of Mr. Ricketts' new seedling grape, "Lady Washington." Though it had been several days on the tables of the Permanent Exhibition, it weighed nearly a pound. It is a white grape, with a slight amber tint, and of excellent flavor.

Marshall Pear.—This fine new American pear originated in Washington county, New York, and is now [1876], being propagated and for sale by P. H. Foster, at the Babylon Nursery. And the following is Mr. Foster's description: "Tree moderately vigorous; very productive; fruit rather large; bell shape; greenish russet, becoming yellowish when ripe; thin skin; flesh white, juicy, buttery; flavor neither sweet nor sour; ten days after the Bartlett, as good a bearer and better fruit; smooth; does not crack nor canker; is always much admired while growing and when ripe."

Some fruit came to hand a few weeks ago, and we can truly say that few pears will excel it in flavor. We regard it as a very valuable acquisition, and we say this knowing full well that the list of pears "recommended for cultivation" is already too large.

Early Dawn Grape.—At the recent annual meeting of the Newbury Bay Horticultural Society the premium for the best seedling grape grown in the open air, worthy of cultivation, and to which no premium has been before awarded, was given to Dr. William A. M. Culbert's "Early Dawn."

Brighton Grape.—Mr. T. T. Southwick, Rochester, N. Y., writes:—"I do not believe I can serve my friends better than to recommend them to try this new grape. The more I see of it the better I am pleased. The growth is almost as strong as Concord, and so far as I can see the foliage is free from all fault. The fruit is, in the highest sense, excellent. Last season I tested it by eating Brighton from one hand and from the other my favorite Iona, and it stood this severe test. Both bunch and berry are large, and what is more important, it is among the very first to ripen. Taken all in all I consider this one of my best grapes yet brought out. Allow me to add I have no vines for sale, or any interest whatever in this vine, save as a lover of fine fruit."

[We have had opportunities of testing this grape this season and can say that in all that refers to the good quality of bunch and berry we can endorse all Mr. Southwick says of it.—Ed. G. M.]

Freeman's Late Peach.—We have from Col. Freeman, of Alto Pass, Illinois, samples of this beautiful peach, reaching us on the 27th of September. Some measured ten inches in circumference and weighed seven ounces. It is a yellow fleshed freestone, and in quality equal to Crawford's Late. Following that excellent variety in order of ripening, it ought to be a very valuable addition to our list.

Forrest Rose Strawberry.—I have seen this new berry in its bearing state growing alongside of the most noted sorts. I looked through two acres of it and have no hesitancy in saying that it is the largest of all, plant and berry, and of unsurpassed quality. A bright color and of solid texture, with a kind of toughness that will make it desirable for market. The owner and discoverer, Mr. J. Fetters, of Lancaster, O., contents himself with sending large quantities to market and out-selling everybody, and won't sell plants.—J. H. C.

SCRAPS AND QUERIES.

The Early Peaches in California.—Mr. Robert Strong, Westminster, Cal., writes:—"I have been disappointed in finding no notes in the *Monthly* on the three new peaches competing for the prize of best early, viz.: Alexander, Amsden and Briggs' Red May, with comparisons on Early Beatrice. The peculiar season in California has affected our peach crop, and here in Southern California no peach trees are bearing this year, except seedlings. All these varieties should have fruited with me, side by side, as I expect them to do next year. Can any of your readers give us notes from experience as to their comparative value. Early Beatrice has fruited here for two years, ripening about June 20th, a valuable peach, but too nearly a cling and too small, though of very fine flavor. All nursery stock looks well. I can show apricot on peach eight feet high, from the bud this season; and plum on peach nine feet, and peach on peach seven feet, with good stout stems and branches, and still growing. We expect, however, to do in one year, in our long seasons, what it takes two years to do in the East."

A Good Early Pear.—A Pennsylvania correspondent writes that for three years past he has had the Julienne and the Manning's Elizabeth growing side by side, and that the former proves slightly astringent. It is not so good a pear as the latter, but a few days earlier.

Improved Siberian Crab.—Mr. Joseph Liggett, Lowellville, Ohio, writes:—"I send you two Siberian crabs, please let us know how they compare with other varieties that have come to your knowledge. It was raised from the seed of what is known among nurserymen as the large red Siberian crab. This is the first year it has fruited. Both specimens are from the same tree."

[We have seen a large number of the seedling improved crabs from Canada and Michigan durthe last two years. These improvements have not been reduced to any system yet, so that the comparative merit may be noted. We can only say that this one is at least as good in quality as any we have seen.—Ed. G. M.]

Kinney's Cider Crab Apple.—J. T., Quincy, Ky., says:—"I send you to-day by mail a specimen of Kinney's cider crab, a seedling of the Wells; originated with Henry Kinney, Esq., near Portsmouth, Scioto county, Ohio. It is an early and profuse bearer, and fruit hangs well on the tree. Please give us your opinion of it in the *Gardener's Monthly*—a magazine I could not live without."

[This is a small apple, about the size of the larger improved Siberian crab, but evidently not belonging to that section. If it is a "crab" at all it certainly is not one of the "austere" kind about which political farmers love to refer to in their "orations" at agricultural fairs, but a nice little juicy thing.—Ed. G. M.]

Care in Varieties.—A. C. L., Madison, Indiana, writes:—"A word of new fruits and plants. It is the custom of horticulturists and florists to send out new fruits and plants with the high-sounding names attached (and above all high prices) of the originators, and if either prove to be worthless, attach the blame to the propagator. This is poor consolation to the purchaser. It is the duty of every disseminator to test everything that passes through his hands, and if it prove a failure reject it, and if a success declare it so from his own knowledge; but a course directly the opposite of this is pursued. Should I send a bad twenty dollar greenback to a florist he would lose no time in returning it, no matter how innocent I may have been in receiving it myself."

Hoosac Thornless Blackberry.—T. G., Hamilton, Illinois, writes:—"Will some one who has had experience with this new berry give the result to the readers of the *Gardener's Monthly?* It seems to be hardy and a good grower, and is certainly quite free from thorns, and if its fruit will compare favorably with other sorts, may be a great acquisition. The writer has a quantity of young plants (and others are, doubtless, similarly situated) but does not wish to set them

without knowing more of the character of the fruit. Are they of good quality? are they prolific? and how do they compare in size with Kittatinny or other sorts? Will some one not having an 'axe to grind' please answer?"

Lime on Clover Sod.—G. W. N., Silcott's Springs, Va., writes:—"Recognizing as I do the high authority of the *Gardener's Monthly*, I come to you for advice. I have a clover sod that I wish to plough for peach trees, and intend to apply fifty bushels of lime to the acre. How and when would you apply it?"

[We would lime and plough at once, and plant the trees early in Spring.—Ed. G. M.]

Bassett's American Plum.—Mr. B. writes:—"I have a half peck of my new Plums on exhibition. Please examine and see if it keeps up the good character you once gave of it." But the plums had disappeared. At all exhibitions we have attended this season we have noticed an enormous amount of fruit and even flower pilfering going on, not by "poor" people, but by the "well-dressed," and their "dress" generally keeps them from anything more than a "remonstrance." We think it due to exhibitors that a better example should be made of these gentry.

Fine Late Peaches.—J. K., Springfield, Missouri, under date of October 4th, sends us the following note:—"I sent this day a small box of a seedling peach, which I hope will arrive in good condition. It ripens the first of this month. Three years ago it was fully two weeks later. I planted the seeds eleven years ago. Had it bearing in 1872, first; then 1874, and this season the trees were very full. Would like your opinion on it. I have no trees for sale, as I am not in the nursery business, but am a reader of your most valuable *Gardener's Monthly* since the first number in 1860. Some of these days will let you hear of fruits in this part of the world."

[Beautiful and good, and then twelve inches round! They arrived in good condition after their long journey, which shows them to be a good traveler. It is certainly one of the best white fleshed clings we know.—Ed. G. M.]

Fruit from the Grand Traverse Region, Michigan.—Mr. A. Hoppe calls our attention to some remarkably fine apples grown by Mr. Geo. Parmlee of this region, but we already know, and we think our readers do, that there is no better fruit district in the Union than this, and possibly no better fruit-grower than Mr. Parmlee.

FORESTRY.

COMMUNICATIONS.

GROWTH OF THE HICKORY.

BY MR. GEO. CRUIKSHANKS, WHITINSVILLE, MASS.

In the *Monthly* for this month (September) you give some account of the rapid growth of some Hickory trees in your favored State. Hear a report from the old Bay State. In June, 1858, I found a few Hickory (Carya alba) shellbark nuts among a lot of moist wood-shavings. They had started to grow. I planted three of them; two of them grew; one of them I cut out, and it continued to grow. Thirteen years from planting, the tree bore nuts. On account of extensive improvements in the garden and grounds, the tree had to be lowered two and a half feet, which I did successfully last April, when the tree was 36¾ inches in circumference, and over 30 feet high. The tree is in good foliage, and bids fair to do as well in the future as it has in the past.

A LARGE HORSE CHESTNUT TREE.

BY W. G. B., GLENN MILLS, PA.

It is with great interest I always read notices of trees of unusual size. One which I think well worthy of publicity has lately come under my notice. It is a Horse Chestnut close by the residence of the late Mr. Borden, about two miles south of Media, Delaware County, Pa. Measured three feet from the ground it is just fourteen feet in circumference. If measured two feet higher, the girth would be a foot or two greater. The height of the tree and the amount of branches correspond well with the enormous body, and it is in all respects a most majestic tree, and well worthy a visit.

EDITORIAL NOTES.

Forestry on Unproductive Lands.—We have thousands on thousands of rock covered acres on our American hills not well fitted for agricultural purposes, but just suited to timber culture, that are well worth looking after in this connection.

Scarcity of Dog-wood.—Says the *Boston Journal of Chemistry*: "It is a curious fact that the bellicose condition of England has so largely increased the manufacture of gunpowder that the supply of dog-wood (Rhamnus frangula) has fallen short, and a supply is obtained in Germany and other parts of the Continent. The government formula for gunpowder calls for charcoal made from dog-wood, and hence the demand. Other kinds of charcoal would unquestionably serve just as good a purpose, but official commands must be exactly met. A state of war in any civilized country does not usually increase the use of gunpowder. The arts of peace demand the largest employment of the explosive, and when men are drawn away from the mines and the quarries to enter armies, the consumption of gunpowder is arrested."

If this is really intended for Rhamnus frangula, our country could probably find in the Carolina Buckthorn a very good substitute. The writer of this saw it this Summer growing very abundantly in the woods of Kentucky and Tennessee. We have never heard of R. frangula before, however, in any special connection with gunpowder, nor that it bore the common name of dog-wood in Europe. Its berries are highly valued there in dyeing, and it might be worth the while of our Tennessee friends, whom we recently found very intent on developing their home industries, to look after the Carolina Buckthorn in this connection.

NATURAL HISTORY AND SCIENCE.

EDITORIAL NOTES.

Quercus heterophylla.—This, which in Michaux's time was thought to be confined to a single tree near Philadelphia, and was called the Bartram Oak, proves to be widely scattered through Delaware and New Jersey. The botanists near Philadelphia are continually finding trees, notably Messrs. Canby, Commons, Burk, and Martindale. We are still of the opinion, offered some time ago, that it is but a Northern form of the Southern Water Oak, though we have to confess that the leaf stalks are longer than we have seen in the Water Oak South.

Helping Botanical Studies.—Managers of newspapers generally underrate the intelligence of their readers. There are innumerable people interested in something more than mere gossip and tittle tattle than might be supposed from the material served up to them. Last year the Philadelphia *Public Ledger* gave continuous articles on the botany of Fairmount Park with popular notes on the plants, by Mr. Isaac Burk, of the Philadelphia Academy, and they were immensely popular.

Restoring Dead Seeds.—We see some statements apparently with scientific endorsement, from time to time in the papers, which need further explanation. See, for instance, the following, which is going the rounds of the papers:

"Professor Lazenby, of Cornell, tried many experiments with steeps on seeds kept at an average temperature of 65°. The best effects on cruciferous seeds appear to have been with chlorine, and with camphorated water. Turnip seeds, so old that hardly a tenth would germinate under ordinary treatment, were treated with camphorated water and then dried by rolling in plaster. These germinated freely. The difference was striking. This treatment is easily given, and the experiment is worth remembering and repeating. In other instances, seeds which would germinate, when moistened with pure water, in forty-eight hours, required only from thirty to thirty-six hours when moistened with bromide water, and twenty-four hours with iodine water."

When old turnip seed does not grow, the supposed reason is that their vitality is gone—really they are dead. Are we to understand from these experiments that 90 per cent. of dead seed among a hundred good ones are brought to life by camphorated water? Of course this cannot be the meaning, but what is it then?

Mountain Ash Berries Poisonous.—An English paper says:—"A girl, four years old, named Campbell, has died at Grennock from the effects of having eaten a quantity of Rowans or Mountain Ash tree berries."

When the writer of this was in England recently, there was much excitement over a supposed case of death from eating ice cream; and people have died from eating oysters and other things. But there is a prevalent belief that no rosaceous plant is poisonous, and we very much doubt whether the Mountain Ash is an exception to this rule.

The Poisonous Yew.—It has long been a belief that yew berries are poisonous. The pulp around the berries certainly is not. There is a discussion going on in England, that the seeds neither are poisonous, but we should not be disposed to risk them.

A New Destructive Beetle.—Dr. Horn has named a new beetle after Mr. A. S. Fuller—Aramigus Fulleri. It is a brown, warty-coated insect, about the size of a pea, and is a voracious leaf-feeder. It does not seem to be particular what plant it feeds on. It is not found in any great numbers, but makes up for this in its immense appetite. It takes to New Jersey chiefly.

A Curious Fact for Darwin.—Under this head, a paper from which we might expect better things, has the following:—

"In a garden at Billancourt may be seen at the present moment an apple tree loaded with fruit. There is nothing extraordinary in this, but the stock of the tree is cherry, on which has been grafted the apple, a species of golden pippin. The fruit precisely resembles cherries—the same stem, the same size, the same form, and nearly the same color; but its taste is that of an apple, and it contains pips instead of stones. Specimens of this botanic phenomenon were recently submitted to our inspection. It must be a real curiosity, for it is generally thought impossible to graft a pip-bearing fruit on the stock of a tree bearing stone fruit."

In a public garden of some pretension, where the trees are grouped scientifically, we saw the "Mountain Ash," which is *not* an Ash planted with the true Ashes. It would be just as reasonable to call this a "fact for Mr. Darwin." No doubt the "garden at Billancourt" has here an "Indian cherry," which is not a cherry, but nearer to an apple. There is much misconception in the public mind as to the work of Mr. Darwin, and all sorts of absurdities are passed off under his name. People may honestly differ from Mr. Darwin in some of his conclusions, but few men have appeared who have done so much for true science as he.

The "Tumble Weed."—In Mr. Hall's note (see p. 305) last month, "Artemisia dracunculoides" should read *Amphyachiris* dracunculoides. The error was ours—not Mr. Hall's. It is a yellow flowered composite plant—or as we may say in popular language, of the Aster family.

The Andromeda arborea.—The *Garden* credits the *American Agriculturist* with saying that this tree "is valuable for its fruit which hangs on all Winter, and that it is a native of Pennsylvania and southwards." There must be an error somewhere. The fruit is dry and valueless, but it is well worthy of culture for its graceful habit of flowering, and its pretty Fall colored foliage.

The Flavor of American and English Peaches.—The following letter is given just as received:—

"Mr. Editor: You live near by one of the best peach regions in the United States, or at least of the Northern States. You have just passed a Summer in England, and you may fairly be supposed to know as much about fruit as anybody I could refer to. Pray allow me then to ask you what you think about peaches? The point is this: My English friends and acquaintances when they come over here praise our pears, but declare that our peaches are not good. On the other hand, I believe that our people who cross the Atlantic think that English peaches, however fair to the eye and exalted in price, are deficient in flavor. My own experience accords with theirs, but it is very limited as respects the English fruit, and I have eaten delicious peaches on the continent. I lately had the question of the relative goodness of English and American peaches put to four ladies of undoubted taste and judgment, two of whom had resided for some years in England, and the other two had passed more than one season there, while all had the means of indulging in good fruit and the opportunity of tasting it at the tables of well-to-do people. The answer was essentially unanimous, that English peaches were not to be mentioned in the same day with ours, that they were sweet and juicy, but comparatively insipid. I suppose that the standard is different in the two countries; for our English friends say that our peaches are acid, and need to be eaten with sugar. But I remark that this does not apply to other fruits; for our friends say that in our apples they miss the 'agreeable tartness' of the English article.

"Now please give us the benefit of your large experience on both sides of the water, and oblige your constant reader, Persicus."

[This is one of those happy cases in which both sides are right. The Editor had boasted of

the superiority of English peaches to his American traveling companion, and was a little taken aback when he could not find one in Covent Garden market fit for her to eat—from an American point of taste. If any of these came to the tables of well-to-do people, when American friends were entertained, the verdict would certainly favor American peaches. These were (in July) evidently glass-house fruit. But when the peaches are from healthy trees, trained on south walls, in the open air, and allowed to mature only what the trees can well take care of, English peaches are delicious.

On the other hand, Europeans judging of American peaches by the average of our market fruits, much from unhealthy and overladen trees, are at a disadvantage.

The exact state of the case is that there is very little difference between the best specimens of English peach growing and the best of American—that little difference we believe to be in favor of American fruit.—Ed. G. M.]

LITERATURE, TRAVELS & PERSONAL NOTES.

COMMUNICATIONS.

SIX MONTHS IN THE FOOT-HILLS.

BY MRS. FANNIE E. BRIGGS.

For a few months it has been my privilege to study the flora of a little nook up among the California hills, but even this little space afforded some choice treasures.

The flowers of the Manzanita were the first. This beautiful shrub was blooming in December, and in May its flowers might be found in some localities. It is an Ericaceæ, with strong resemblances to other members of the family, has light green, leathery leaves, and clusters of flowers with the shape of the flower of the common Wintergreen, the hue of the Arbutus, and the odor of fresh honey.

There were other handsome shrubs, including an Azalea with large white flowers just tinged with pink; but the shrub that I should think would be the greatest acquisition to the flower-garden is a species of Rhamnaceæ, of close, compact habit, small dark green leaves, and clusters of fine bright blue flowers. [Ceanothus thyrsiflorus.—Ed.]

There were a great many miniature plants that were very interesting. There is a little plant of the Pink family that whitens acres with its minute stars, and sweetens the air with the odor of Violets. The whole plant, including the root, measures less than three inches. Scarcely larger are three other little plants, nearly related to the Mimulus, consisting of a little woody root, a cluster of leaves, and a flower which constituted nearly half the length of the plant, and were crimson, pink, and yellow. I thought I discovered one of nature's secrets. Many of these little plants were provided with a cluster of thick, juicy leaves, set closely about the flower, which retained their freshness when the stem and root seemed entirely dry, and I think furnished nutriment to the flowers. [This Mimulus is Eunanus Douglasii.—Ed. G. M.]

In that dry climate it would be natural to look for many bulbous-rooted flowers, and I found them in great abundance. The Climbing Hyacinth is one of the prettiest. Vick gives the botanical name as "Brodiæa Californica." It resembles the common Hyacinth somewhat, but is smaller, and has but three perfect stamens alternating with three imperfect ones. Assuming that this is the generic distinction, there are several members of the family who are near neighbors. These vary in color—white, pink, and several shades of blue; in shape from almost tubular to broadly campanulate; in size, from little over half an inch to nearly two inches; and in height, from the little early blue Hyacinth, four or five inches high, to the climber, as many feet; but all having the three imperfect stamens, long, narrow, fleshy leaves, and involucrate umbels of flowers.

These false stamens in all are larger than the true, and nearly conceal them, but differ much in size and shape, being broad, and curved so as to be almost tubular in some; long, narrow, and straight in others; and in others still, long, but broad and spreading.

The Triteleias, of which there are three species, yellow, white, and blue, are nearly related to the Brodiæa, but have six perfect stamens. The dried-up beds of the little mountain streams are full of little Alliums bearing little clusters of pearly white blossoms.

I looked vainly for Vick's "Calochortus cærulea," but found a beautiful bright yellow species exactly resembling it in shape. The species which he calls the "Mariposa Tulip," was very abundant, and is known as the "Butterfly Tulip," a name which is very well chosen, for the pale yellow petals variegated with rings and spots of rich velvety brown, exactly resemble some butterflies' wings. [A. Fritillaria.—Ed.] But the pearl of all these flowers I think is the White Tulip. The most rocky hillsides seem to be its chosen abode, as if conscious that its delicate beauty and grace were enhanced by the contrast. It is a slender and leafy plant, in general appearance resembling a Cypripedium, but more delicate and graceful, the flowers pearly-white, the petals overlapping in a way that hides the interior, which is slightly fringed and faintly tinted with rose like an ocean-shell.

I saw none of the most beautiful California Lilies, and found only two species. One was the Bloomerianum of the florists; the other I know no distinctive name for. It bloomed in April and May, the flowers rather small, reddish-yellow, and curiously checked or barred rather than spotted, with brown. I looked vainly for any Cactii in the hills, but found two species of Crassulæ. One of these was quite large, growing solitary in clefts of the rocks, and bearing bright orange-scarlet flowers; the other was small and spreading, growing in the moss that covered the rocks on the banks of streams.

I should have mentioned the "Soap Root" among the bulbs. It is said that the Indians use it for soap, but I made many inquiries as to the mode of preparation, without obtaining any information. The bulb is very large in good soil, and covered with a thick fibrous envelope which is used for mattresses. The stem is tall, branching, and bears great numbers of pale-blue flowers. [Chlorogalum poweridianum.—Ed.]

PROTECTION TO PLANTS.

BY EUGENE GLEN, ROCHESTER, N. Y.

A prominent nursery firm, in a recent letter to me, while conceding the importance of some measure of protection, have brought to my attention a single question regarding the practical working of horticultural copyrights. As the same question may have arisen in the minds of some of our readers, I will attempt a solution of it through your columns. They say in substance: "Suppose one hold a copyright upon the name of a valuable grape, what is to prevent a purchaser of a quantity of the vine from us, propagating others therefrom, and selling out those propagated by him under color of selling those originally purchased from us." To this I reply: So long as the purchaser from you sells the vines propagated by him under some name other than that secured to you—that is so long as he does not attempt to steal in part the reputation for the grape which you will have created—you will have no reason to complain, but your rights under the law will not be easily evaded. The law would give to new varieties in horticulture, precisely the same degree of protection that is now secured by trade marks to manufacturers of any kind of merchandise, and I believe that it cannot be shown that there will be one difficulty attending its execution that is not equally applicable to trade marks upon other merchandise, and especially to the names of so-called patent medicines. To illustrate: Mr. Ayer operates under the same law that governs brands of flour, or any other commodity. He has no patent upon or exclusive right of property in the formula from which his pills are made. He simply holds the right to the exclusive use of the name "Ayer's Pills." There is no practical difficulty to prevent any druggist from making a quantity of pills resembling Ayer's, putting them up in packages similar to those containing the latter, and, under cover of the purchase of an invoice of the genuine, selling out those made by him. But experience shows that druggists do not do this, and that Mr. Ayer and other manufacturers of trade mark goods, do not suffer in any considerable degree from piracy upon their rights. The reasons of this are these. Before a druggist could work up a trade in his make of pills sufficient to render their manufacture remunerative, the attention of Mr. Ayer would be called to the fact that the former could not afford to make the outlay or pay the attention he is showing to the trade in "Ayer's Pills," simply to sell out those purchased. The moment that Mr. Ayer's suspicions are thus aroused, he could file a bill in equity against the druggist, make him produce his books and papers, and show under oath just how many boxes of so-called "Ayer's Pills" he

had sold. If, as a result of the examination, it appeared that Mr. Ayer's rights had been infringed, he would recover judgment against the druggist for the damages he had sustained, with costs, and an injunction against future violations of his rights. The chance of having to pay the costs of both parties, if actions are not maintained, would deter Mr. Ayer and others from commencing prosecutions without having well-grounded reasons for believing that their rights were being invaded.

So, too, if you should sell another nurseryman one dozen or one hundred of your copyrighted grape vines, and he should put the name secured to you in his catalogues and circulars, and press the sale of vines under that name, without making further purchases from you, your suspicions that your rights were being infringed would be aroused. Under the proposed law you would have all the remedies now given for violation of trade marks, with the added advantage that while the latter, being common law remedies, are limited to actual damage, if one could recover, in addition to actual damage, the entire profits realized by the infringement. The fact that they cannot thereby make any considerable sum without subjecting themselves to the consequences of prosecution, has been found quite sufficient to deter most evil disposed persons from infringing upon trade marks of those who are here to look after them. With no greater difficulties to encounter, and with the added penalty named, there can be no doubt that the law would give you substantial protection in the enjoyment of your copyright.

In another communication I will present some of the reasons for adopting this law as a means of lessening the sale of fraudulently labeled trees and plants.

EDITORIAL NOTES.

European Notes by the Editor. — In going through the world we meet with two sets of travelers. The one stands watch in hand, counting the mile-posts as the cars rush by, and rejoices when he discovers that he has made forty miles an hour. The other looks out on the hills and vales and streams, the green fields and bright flowers, the works of nature and the works of art, and would almost be thankful for a slight accident which would detain the locomotive that he might get out and admire. Steam is too fast for him; yet he feels that he must go on. In spite of himself, he has to go. And thus it is through all life, and especially through my short life in Europe. I see things every moment I know it would interest my friends at home to hear about. This little Isle of Wight containing not three hundred square miles is full of them, but I have other things to say, so we must "get on." Yet I must linger a while to take another last look at it.

Here is the town of Ryde, which, when I was brought into it a child of five years old, had about one hundred old-fashioned houses, is now a fashionable town of some thirty thousand inhabitants. I look around for some old landmark to remind me of my youthful days, but the proverbial cat in a strange garret might feel more at home than I. Doubtfully I go from house to house to inquire for old friends, but it is generally the same answer: "Dead, dead, long since dead and gone." Here is the pretty "Swan's Nest Cottage," and my escort whispers "Surely you knew Captain Masters? his son still lives there." And I must venture in at least and ask for the boys. It seemed scarcely possible that one should be Masters of Nebraska, whom I had known for the past twenty years, and yet had never recognized as the playmate of my school-boy days! I wandered around to my old haunts, but all were changed. Surely, I thought, the graves of the dead in England at least are sacred. They do not rise and follow their descendants into distant lands. So I started for the spot where the six hundred drowned sailors of the "Royal George" were buried, and where the only known locality for the "Proliferous Pink" made the spot equally venerable to the botanist; but these also had been swept away, and very fashionable houses, with "apartments to let" swinging from the windows, occupied the site. Right through this grassy meadow where I had often watched the king-fisher spread its beautiful blue wings, the water-rat paddle in perfect security, and once had the rare privilege of seeing the *ignis fatuus* float across its marshy surface—the locomotive now coursed, a stern reality, and all the poetry had vanished away.

Rip Van Winkle's experience seemed less real than mine. It was not without some satisfaction that I found the old school-house where I and some hundred other boys were taught, still just the same. In the days of which I speak, those who could not go many miles away,

had to take such education as they could get. The Lankasterian school was the only chance for me. It did not take long to go through the course in those days, and at twelve years old I was a "monitor" over a dozen boys, on a salary of one penny a week, and the privilege of attending on some extra branches of education on Saturday morning, which the zealous master voluntarily gave us besides the duties he was engaged to perform. I can hardly express the feelings with which I stood on the only spot in all this great town I recognized, and where forty years before I was the centre of a half circle with a dozen boys toeing the chalk-line around me. One by one I endeavored to recall their faces, but it was a hard task. I wandered into the little "dissenting" chapel near by and which had started that school, but it was not the church I knew. Nothing was left of its former simplicity. "Where" I asked the sexton, brushing up for the morrow's Sunday service, "is the old minister Guyer?" "Dead. We were not allowed to bury a Calvinist in the church-yard of the town, so we put him in there in front of the pulpit." "And where" I asked "is Mr. Parrish who taught in that school?" "He went as missionary to Burmah, and took the fever and died there." It was the same story all the while. Ryde was indeed an American town to me. It is ever on the improve, and it drives out the past even worse I think than we do. It has improved itself to death. When it built a pier, and established a steamboat line to the mainland seven miles away, it was a lovely rural spot for the tired Londoner to approach and enjoy for a few days. But it has been "esplanaded" and walled in all round about in various ways until there is little left to enjoy but a sight of the sea from your bed-room window, so that now when the visitor comes he mounts the cars at once, and goes for the back of the island, or some place. Our prosperous towns may take a lesson from this: Improve and beautify—but lose not sight of natural advantages.

Was there to be nothing but this little school and its dream of the past left of the old long ago? We took the cars to wander about the island which was once known as the garden of England, in hopes to find something of the olden time. The hedge-fences purple with the glowing fox-glove, and the hundreds of mollusks with their beautifully colored shells which abound among the vegetation of this favored clime; the red tiled or straw thatched houses seemed about as they once looked; but it was not until we came on the ivy-covered ruins of Carisbrooke Castle, we felt entirely at home. There is a well here near three hundred feet deep, sunk they say in the time of King Stephen, to keep the besieged in drink, and the waters of which are drawn by a donkey, which stands, or rather walks in the inside of an immense wheel. The donkey of our time had passed away; his successor stood in the green "parade ground" inside the castle, listless to all around, and waiting for his time to come; and the third generation was now at the wheel. But the crumbling old battlements were still about the same. We walked still over the parapets from whence the famous bow-and-arrow men picked off their enemies. We looked through the rooms where the prisoner King Charles was confined, and the chamber where the Princess Elizabeth died; and the ivy still clung lovingly around the bars of the window through which the King escaped, once more to be restored to his royal seat. These venerable ruins may probably be

"The Ivy's food at last,"

but the famous old plant is a long time over its meal. Huge trees grow out of the ruins, and you walk in and out of what were once upper chambers, with branches of trees themselves perhaps a century old at your very feet. Dust has blown into crevices on the heights of the walls, and the moss has grown and died in it, and made soil; and in this again the birds have built their nests, bringing seeds of plants in the material, till the whole of these old walls have become a botanic garden—wall-flowers, Canterbury bells, stone-cups and wild thyme. One could soon fill a good sized herbarium from this little world which has been wholly created since the hand of man put this vast pile of mortar and stone together here. But how long it was since this was done no one knows.

Right in the valley, at the foot of the hill, has recently been dug out from beneath the surface the remains of a cottage of immense size. It is only the floors and partition walls at the base, but it must have been an elaborate affair. The floors are made of half-inch squares of stone or tile, and worked in Mosaic style to represent as many beautiful patterns as a modern carpet. But what interested us most was the remains of the bath-room. These baths are of thin stone, rather shallow, and lined with Roman cement and were warmed by hot-air flues which are carried under them. It is no doubt the remains of

a Roman villa, and perhaps two thousand ——— well, I have assisted at the opening of Mound Builders' graves, but it never seemed to me that they were as old as these. We have to go among these evidences of time in the Old World before we can fully realize the fact that in the order of Providence a thousand years is but as a day.

But we must let the past go. How is horticulture in these present times? The best we could do was to select types of various branches of garden art and garden trade, and let these give us an idea of whole.

The Rose trade has always been an important one, and after a hasty run through Portsmouth, Chichester, Brighton, and other interesting spots along the south coast, and of which we know we shall not have time to speak, I found myself in the famous old stand of the Woods of Maresfield in Sussex, and of whom all at least who have admired the beautiful Madame Charles Wood—still one of the best hybrid perpetuals—will love to know about.

Rain!—well, of course in England; but we took temporary refuge under a beautiful tulip tree and I felt at once at home. But remembering that I really was in England, I took out tapeline and measured five feet round. This is not bad for only thirty years, and yet nobody could tell me why American trees were so scarce in England. In our own country we find most of our garden pets foreign born; but the bulk of English planting, except with Conifera, is of their own native trees. Then we were introduced to the packing sheds for shelter, and were kindly permitted to examine the details for transportation. Boxes are seldom used. The pots are stood upright in stout shallow willow baskets with a handle in each side. Light poles are stuck in the edges of the basket, and then tied, tent-like, at the top, and a "Russian mat" turned round the whole. These three feet over baskets are charged to the purchaser at about seventy-five cents. Nothing shows so much the differences in the horticultural conditions of the two countries. With us these "hampers" would dry out "in less than no time," and the express companies would growl because they could "pack nothing on top" and raise the rates on us. Basket making, by the way, is mostly in the hands of the blind in England.

Of course the most striking thing of note in an English Rose nursery is the quantity that is grafted on stems several feet high; these are the standard or tree-roses. There is this advantage, that the flower is then brought near to the eye for examination, and for the nose to enjoy the rose's delicious scent. We cannot have these in our severe climate as all experience proves. Here there were about an acre of them, and all in full bloom. The stocks are simply of the Wild Dog Rose—Rosa canina, and are gathered by men who make a business of scouring the woods for them, and sell them to the nurserymen for about forty shillings a thousand, or one cent a piece of our money. These are set out in nursery rows and budded, and there is as much rivalry among young English gardeners as to who can bud the most roses, and do the rose-work best, as there is among us to bud Peach trees. Our climate brings the rose-flower to early maturity, and almost annihilates the various delicate tints and shades which characterize varieties in England. If the following hybrid perpetuals do as well with us as I saw them here, they would prove among the best of their colors:—Whitish pink or flesh color Baronness Rothschild; white clustered and Noisette-like Boule de Neige; Louis Van Houtte, crimson; Eliza Boyle, large blush white; Comptesse de Maroonaise, of very pure white double perpetual moss; Olga Marie, a very beautiful blush; a very pretty Noisette is Creme D'or—pretty for its delicate brown tinted young foliage. Of course there is "any quantity" of Dwarf Roses, and there is the same rage to have them grafted on the Mannetti stock that there was here thirty years ago. It will probably not last. There is a large number of glass houses here, and mostly in connection with rose growing. Teas, Chinas, and other of the more tender kinds, are grown in pots in large quantities. It is strange that so much care can be given to Roses as are given here, and yet the business be made to pay. The best houses were of two-year plants, and all models of health, and perfectly clear of insects. Men are kept constantly going over the plants, sponging the leaves with "Fowler's Insecticide." After all, it does not take as much time to give proper attention to things "in the bud," as it does when we let work get the upper hand of us. Besides the acres of roses, there is a fine collection of fruit and ornamental trees as part of the trade. The Hawthorne, or "Quick," is still the hedge-plant of England and sells for about ten dollars a thousand. It was a surprise to my English friends to be told that hedge-plants sold in America for the half or three-fourths less than this.

The Norway Spruces I saw here were among the best I found in England, and I take the occasion to say that I rarely find this or most of the Conifera do as well in England as in America. As compared with our trees, I can scarcely say I saw one beautiful Norway Spruce in all England. When we come to the kinds from our Pacific coast, they have much the advantage of us, and here let me say that I think if we, east of the Rocky Mountains, would grow these Pacific trees at all well, we must plant them in sheltered woods and half-shady places. I know I shall be told they grow in the open in their own country, but I do not care about that.

The Senior Wood was away to the Alexandra Rose Show, and I found that most of the leading nurserymen of England took great interest in all these public exhibitions. But I was happy in finding the young scions from the old tree, quite as likely to bring forth as good horticultural fruit as their time-honored parent, and they were very kind to me. There are other interesting nurseries and gardens in the vicinity on which I may remark another time, but I must stop now.

Gardening around Nashville, Tennessee.—In August we had the chance of a run through Kentucky and Tennessee, and were much gratified by various signs of revival in gardening. Before the war the great bulk of the readers of the *Gardener's Monthly* were in the South, and we could still find remains of our old time work. The American Association was in session at Nashville, and a paper read by Miss Ingram, of Edgefield, reminded one of the opinion of Major Hardee, of Florida, that insects could be destroyed in orchards by firing off guns. The lady is sure that disease germs can be destroyed by concussion, and an explosion of gun-powder will destroy insects. The idea may not be of great value to fruit growers, but certainly there is a germ of truth in it, and how far it may be practically effective is for experiment to determine. Nashville is a beautiful town. It is a continuous succession of hill and dale. The prevailing street tree is Paper Mulberry, and they are numerously planted. Once in a while there are a few Silver Maples. The Black Sugar Maple thrives well, but the northern species does not. Gardening is not of course what it was before the war. In the older places we can see how well it was patronized; but though many of the old roads and walks in gardens are now so grass grown that we can hardly see them, the grand old trees grouped with great artistic effect show what the art has been. There are many smaller and newer places, however, that show considerable taste both in planting and floral adornment. One of the prettiest and best kept grounds I saw was the State Hospital for the Insane. The original laying out of the grounds was very fine, and the spirit of it all has been preserved. It is too often the fault to add without judgment until the original design is lost. The plant-houses had many nice plants, healthy and well grown; but the Victoria Regia, so long the only one in the country, perished last Winter. The Winter was one of unusual severity for these parts, killing even the English Ivy on the walls; and the new experience proved fatal to the Royal Water Plant. But the house is here, and no doubt a new plant will be started next year. A beautiful sight was the Cissus discolor, growing on the wall resigned by the Ivy. Of course it is only a summer beauty. Why do we not oftener employ it this way in the North? It would make an admirable edging to a flower bed. Dr. Callender, who has charge of the Institution, has excellent horticultural taste.

The Vanderbilt University has for its gardener Mr. Douglas, an excellent selection, as he is one of the intelligent class that it is always a pleasure to meet. The planting had been very successful indeed. The dead and half dead sticks we so often meet with in public grounds near home, being entirely wanting; and this is the more remarkable, as of the many thousand trees planted here by Mr. Douglas, they were all from the woods. It is a case of skill against great disadvantages. The trees are planted promiscuously everywhere about the grounds; and this will give a good chance to some future landscape gardener to cut out *Secundum artem*, which, by a reference to a dictionary of Latin quotations, we find means "according to the rules of art." As it is now the custom to use French and Latin phrases instead of the good old Saxon words in English composition, we may as well be in the fashion for just this once! The gardens around the dwellings of the professors were gay with flowers, and the grass and walks kept up in right good taste. The location is beautiful, and we have no doubt good gardening will grow on it with the years that are to come.

Dr. Cheatham's beautiful grounds at Belmont, so famous before the war, are beautiful still, and with characteristic liberality the proprietor

opens them freely to the public to enjoy every day but Sunday. There are many fine specimens of Evergreens here one does not see North, and the numerous varieties of Cucurbits rambling over trellisses and arbor in a kind of negligent, or perhaps we might say unconscious loveliness, gave a peculiar character to the grounds. The excellent health of the plants in the conservatories showed that they were in the care of a good gardener. The distant scenery from these grounds is particularly impressive, and I shall long remember the very short and pleasant visit I made to Belmont.

Melrose, the residence of Mrs. Governor Brown, is farther away from Nashville. The house is also beautifully situated to take advantage of delightful distant views. The grounds are extensive and park-like, and the disposition of the grand old trees is such, and the roads led around the knolls and up the glades in such a delightfully enticing way that a master hand must have been employed in the original arrangement. The Scotch Pine, for so far south was doing wonderfully well here.

Truett Sons & Morgan are out on the Edgefield Road across the Cumberland River, through a district abounding with improved gardens and tasteful dwellings, and occupy in their nurseries some five hundred acres. Of course most of the stock is of fruit trees, the apple and peach predominating. The more tasteful departments of gardening are, however, beginning to be sought after; and they feel very much encouraged with the future of horticulture South in every way. The firm is an excellent one in every respect, and we can all rejoice in the abounding evidences of their prosperity.

The grape seems to be the most popular fruit about Nashville. The kind mostly grown is the Ives, and it was strange to find a kind we think so little of so delicious down here. Thus doth climate modify all our kinds.

Our notes must of necessity be brief; but we must not omit one on Mr. McIntyre's nursery. It, like its owner, is still young; but if the reports we everywhere heard of his industry and integrity mean anything, we may regard him as one of the rising firms. His grounds are full of beautiful specimens of Magnolia grandiflora, which is commonly planted South as a Norway Spruce is with us. He has a pure white sport from that good old rose Bougere, which has proved constant for several years, and which he thinks, and we think with good reason, will prove a little fortune for him. We hope so, for he deserves it.

For the first time we saw in flower the "Henna" plant of the ancient Egyptians. It was their royal plant, yielding a juice which brightened their skin, and an odor which might set the Mignonette wild with envy. It is Lawsonia alba.

"How Not to Do It."— The Editor of this Magazine has been careful not to refer to any matter of business that may relate to himself personally in these pages, as he might be charged with using his position for personal ends. Hence the collection of 720 kinds of trees of which his arboretum was formed at the Centennial, received no notice here. But a matter has grown out of this in connection with the Paris Exposition which seems to be of public interest enough to warrant a departure from this rule.

As usually seen at exhibitions, trees are taken up and set in the same season, and thus look shabby, and are no credit to the exhibitor or the exhibition. Therefore, the *whole of these* 720 trees were grown in boxes a year beforehand, and thus were turned out on the Exhibition ground with balls, and the testimony of the Judges on the "growth" of these plants, as given in the award made on them, shows how well this plan worked. This collection, though costing $3000 (including the commercial value of the trees) to place on the grounds, received comparatively no attention from Americans, but was very appreciatively noticed by foreign papers, and the owner therefore determined to make a similar exhibit in Paris. Our people knowing how easy it was to overcome difficulties of planting by growing a year in tubs, had no restrictions on time; but, in the French rules, we were met at the outset with the regulation that "trees must be in the ground one year beforehand." Supposing, however, that this would not be insisted on after we explained our method, we had near a thousand boxes made, and wrote to see what could be done, but no answer was vouchsafed. Fearing we might have addressed the wrong party, we addressed two others in high connection with the Commission, but still not even the poor courtesy of a reply! Then we made a personal visit to Paris, and were told that they had nothing to do with us—that an American must apply for space through the American Commission; and that in regard to the year-a-head rule—rules were made to be observed. We pointed

out that in regard to the American Commission, we had no disrespect to the French people, but the last Congress had quite enough to do to settle our own presidential question; that in any case our Government was not a paternal but a filial one; that we did not propose to send our trees over at the expense of the Government, in a Government ship, but at our own sole, individual expense and risk. Give us 15,000 square feet of ground, and we would plant our trees without thanks to anybody, sending them over this coming Fall, and having everything in readiness when the Exhibition opened. But the only answer was:—"You must ask through the American Commission." We returned to America satisfied that we could make no exhibit there.

However, in correspondence with a distinguished French nobleman, we gave a statement of our difficulties, who kindly replied, "I am sorry to see that though you could not exhibit in a national capacity, you could not either arrange for a private exhibition of your hardy trees at the great exhibition of Paris next year. As the Duc d'Audiffret Pasquier, President of the Commission happens to be staying with me, I gave him an extract from your letter, and he will see whether it is still possible to arrange the matter to your mind."

The Duke kindly interested himself as promised, and the following letter is the result:

PARIS, LE 28, Aoui, 1877.

Monsieur le President et Cher Collegue:

Le Gouvernement des Etats-Unis n'a pas encore accepté officiellement l'invitation de participeo á l'Exposition de 1878. Il n'a point non plus nommé ou designé officieusement les Commissaires chargés de designe representer les interets de ses nationaux. Nous n'avons pu, par consequent, prendre aucun engagement vis-a-vis des exposants Amercains qui se sont addresses a nous; le Reglement general nous interdisant tous rapports avec les exposants etrangers.

Meanmoins, d'apres les assurances données au Gouvernement, je suis fondé a conserver l'espoir de voir les Etats-Unis representes a Paris en 1878. Un espace est tenu en reserve pour la Section Americaine, mais séule la Commission quand elle sera nommée aura qualité pour repartir cet espace entre ses nationaux. C'est a elle, ou a sou defaut au Gouvernement Federal lui-même que M. Meehan doit faire parvenir sa demande et ses reclamations.

Ogreez, Monsieur le President et chev Collegue l'assurance de ma haute et respectueuse considation.

B. KRANTZ,
Le Senateur, Commissionaire General.

Monsieur le DUC D'AUDIFFRET PASQUIER, President du Senat et de la Commission Superieure de l'Exposition Universelle á Sany par Morhie.

The plain English of this is that we must apply to a Commission that does not exist, and which if it did exist, would still be too late to come within the "year-planted" rule. "How Not to Do It," was never better illustrated than now. We are quite sure that such a case never could occur in our country.

We refer to the subject here because there is a general impression that the nursery trade of America is far behind that of Europe; that we must send to Europe if we want to get complete collections. It is a misapprehension of our own people, for we have found Europeans always ready to do us justice when the facts were fairly before them. In the present case, it was our desire to carry the facts there in so far as one firm could do it; and it is as well to show that the failure arises from our French friends not being able to find any way but the one way, and a way which, by their own regulations they insist on effectually blocking up.

THE GARDENER'S MONTHLY FOR 1878.—The recent meeting of the American Pomological Society reminds us that nearly twenty years ago the Editor was asked to write a "specimen number" of a cheap horticultural paper, for distribution at the pomological meeting then being held, so as to see whether such a paper would be sustained. It was a large newspaper sheet, the idea being to decide after people had seen and approved the matter and style, what ultimate form it should take with the beginning of the year.

It owed its origin to the horticultural enthusiasm of D. Rodney King, one of Philadelphia's most enthusiastic merchants, who fathered all the expenses of the venture.

The little venture was approved, and it is with pleasure that the writer of this remembers the kind letters he received expressing this friendly approval. He remembers especially, a pleasant one from Mr. Barry, in which he thought this new pomological product might be "placed on the list promising well."

Now entering on the twentieth volume, the Editor cannot but pause at the prospect before him, and look back as well. Many of his early friends have gone, but he is yet spared for the work. He has been through sad times for Horticulture, but he has been able to carry the work

with him, and now that our art promises to revive and assume somewhat of its *ante bellum* greatness, he feels a renewed spirit in the task. Never has there been so much interest felt in the work as during the past year, as our numerous and widely distributed list of correspondents show. The Editor has no cause to complain of the support given him in his department. It is magnificent. He may be pardoned for hoping that at this season the publisher will be as well remembered.

Every year young people are taking the place of older horticulturists, and the ranks in various ways are being filled by new recruits. These will take it as a favor if made acquainted with the existence of the *Gardener's Monthly*, and many may be able to send on a new subscription with their own.

It may be as well to state that the *Gardener's Monthly* stands alone in its aim and objects in the literature of this country. It takes up horticulture where agriculture drops it, and therefore every person who takes but one agricultural paper and is fond of gardening, will need the *Gardener's Monthly* as a supplement. We do not aim to fill the Magazine with matter that the bulk of the readers already know, or that they could easily find in their regular agricultural or family paper, but write for those who want to read something about trees, plants, fruits and flowers, which will add to their general intelligence as members of cultivated society, and which will redound eventually to their pleasure and profit. There never was a time when people revolted more at the superficial education of the present day, and the shallow pursuits in which so many are engaged; and in the efforts which are being made to direct the attention of the people to natural beauty, and to an intelligent knowledge of all that is about them; we are proud to know that the *Gardener's Monthly* occupies no mean place. As the season for renewed subscriptions is at hand, we may be pardoned for indulging in a word of this kind.

The Lilies of Utah.—Mr. John Muir thus closes an article on the Lilies of Utah, which has appeared in a California paper:

"Liliaceous women and girls are rare among the Mormons. They have seen too much hard expressive toil to admit of the development of lily beauty either in form or color. In general, they are thick set, with large feet and hands, and with sun-browned faces, often curiously freckled, like the petals of Fritillaria atropurpurea. They are fruit rather than flower—loaves of good brown bread. But down in the San Pitch Valley at Gunnison I discovered a genuine lily, happily named Lily Young. She is a granddaughter of Brigham Young, slender and graceful, with lily-white cheeks, tinted with clear rose. She was brought up in the old Salt Lake Lion House, but by some strange chance has been transplanted to this wilderness, where she blooms alone, the "Lily of San Pitch." Pitch is an old Indian, who, I suppose, pitched into the settlers, and thus acquired fame enough to give name to the valley. Here I feel uneasy about the name of this Lily, for the compositors have a perverse trick of making me say all kinds of absurd things wholly unwarranted by plain copy, and I fear that "The Lily of San Pitch" will appear in print as the widow of Sam. Patch. But, however this may be, among my memories of this fair, far land, that Oquirrh Mountain, with its golden Lilies, will ever rise in clear relief, and associated with them will always be Lily Young, the prettiest lily lass in Utah."

Bequest for Tree Planting.— A gentleman of Philadelphia, named Neil, recently deceased, provided in his will $50,000, for the purpose of "tree planting in Fairmount Park."

The Hashish of the Egyptians.— The *Gardener's Magazine* tells us about this famous article:—

"An odoriferous resin much used in Egypt, is Hashish, which is prepared from the tops of hemp, which has degenerated as a textile plant. The flowers contain a resin, which is extracted by boiling the tops in alcohol and afterwards precipitating the resin with water. This preparation possesses all the narcotic properties of the plant in a high degree. The Arab preparations of hashish have all a greasy base, being prepared by boiling resin with butter. From these various electuaries are prepared with the addition of sugar, honey, almond, different scents, &c. These are made up into little cakes, or into a syrup which is concentrated into a jelly by cooling. The abuse of these preparations, which with impressionable subjects produce ecstacy or extravagant hilarity has led to the suppression of their sale. The effects of hashish have long been known. The plant forms the principal ingredient in a species of drink which has often been used by imposters for fanatical ends and the working of pretended miracles. With it, Hassan Saba, Prince of the Assassins, better known as the Old Man of the Mountain, was wont to plunge his fanatic disciples into extravagant extacies, requiring them in return for the ephemeral pleasure to sacrifice their lives wherever his hates or cupidity called for it."

Express Charges.— People who send us fruit or other things for name or examination, always pay the freight and generally mark it "paid" on the box. A few years ago we had to tell our

friends to mark it "paid through," otherwise the company insists that it is only *partly* paid, and we have often had to pay the whole freight charges over again. For awhile our friends remembered this, but some recent very expensive experiences make it necessary to renew the advice.

The Illinois Thistle Law.— Mr. Edgar Sanders says, that so far as he knows, there has not been a single prosecution under the thistle law, though thistles abound.

Buffalo Park Commission—Sixth Annual Report.—We learn from this that $132,426 were expended on this public work last year. It is part of their policy to endeavor to find work for unemployed labor at a season of the year when other work is stopped, and hence $30,000 of this was spent in the Winter in quarrying and breaking stone for the roads. In this way 480,000 square feet of carriage way was completed last year. The city getting the benefit of the good drives, and the laborers finding work when none else was to be had. The cost of these stoned roads is $15,000 per mile. The influence which the park has on the general culture of the citizens, and the welfare of all classes, is well shown in this report. The park embraces 600 acres, and is managed with such excellent taste, judgment and economy, that it is a model in every respect. Olmsted and Vaux are the landscape gardeners and architects, and Mr. Wm. McMillan the general superintendent.

Drs. Hooker and Gray.—On the 29th of August a special meeting of the California Academy of Sciences was held to do honor to these distinguished botanists who have done so much for the science all over the world. Prof. Davidson made an admirable speech of welcome, in which he spoke of the valuable work of Dr. Hooker, Dr. Gray, and Prof. Hayden, by whose kindness the two botanists have been able to see so much of our country. Prof. Hayden made some brief remarks in reply. Dr. Hooker—or more properly now Sir Joseph Hooker— returned thanks for his welcome, and said that his visit had been the means of adding immensely to his stock of knowledge. Dr. Gray, in acknowledging the kindness of his reception, took occasion to refer to the work of Menzies in connection with the botany of California, and the pleasure it gave him to walk in his footsteps. Altogether the occasion was one long to be remembered by the botanists of California. Dr. Hooker has since returned to England, and with Dr. Gray will contribute to Hayden's report.

B. M. Watson.—A son of this well-known and esteemed nurseryman, of Plymouth, Mass., is said to be Professor of Horticulture in the Bussey Institute of Cambridge, Mass.

Proceedings of the Indiana Horticultural Society for 1877. From W. H. Rogan, Secretary. —Besides the usual full reports of progress in fruit culture and other incidents of horticulture, it contains a very able essay on "Forestry" by Prof. J. Hussey. He concludes that only capitalists or governments can plant. He will not have the support of every one to this view. Our idea is that it is to individual interests to plant trees, and that those societies will do the most good which show how individuals may profitably plant trees. But those who differ from Prof. Hussey will at least give to his views every respect, as they are ably stated.

Transactions of the Michigan State Pomological Society. From Chas. W. Garfield, Esq., Secretary, Lansing, Michigan.—Among many items of information, we find that in 1875 an Act was passed by the Legislature of the State for preventing the yellows in the peach and allied fruits. Persons, who after the order to cut infected trees away allow them to stand, are liable to a fine not exceeding one hundred dollars and costs, besides the expenses of having such trees cut out by the commissioner. As Jack Bunsby says, "it is in the application that proof of wisdom comes." It would be very interesting to know whether this law has proved a sufficient terror to cause the owners of infected trees to uproot them; whether any waited to be forced to do it; how many fines have been collected, and whether there is as much of the disease now as there was two years ago. If this cure has proved effectual it may be worth while carrying it to other States. If not, save burdens on the statute books.

Tenth Annual Report of the Ohio Horticultural Society.—We do not know when we have read a report so full of matters of practical value as this, and congratulate the members of the Society in getting the full value of their annual subscriptions in so substantial a way. Mr. Bateham recounts the trouble he had in getting together the beautiful Centennial exhibit from Ohio. Though the State made a handsome appropriation to exhibit its products at the Centen-

nial, the money went "somewhere," and none came to these workers. The Ohio Society had to stand the brunt of the cost.

As a practical item, we select the following remarks of Mr. P. Barry on orchard culture, and we do so because we once had to endure so much contumely for expressing nearly the same views. It is peculiarly gratifying to us that teaching, in which we stood wholly alone at one time, is now generally accepted as the sound doctrine by fruit cultivators.

"In the earlier years of an orchard, nothing but good culture and plenty of manure will answer, but when an orchard comes into bearing, rapid growth of wood is not calculated to produce the finest fruit. Fruitfulness is promoted by seeding down and checking the growth. Pasturing with sheep is an easy practical way of taking care of an orchard, but manure must be used to keep up the fruitfulness. Starving trees on grass is the extreme of grass culture. He would not assert but what greater burdens of fruit could be produced by 'high culture,' but cost must be considered. He has as good quality of fruit in grass as in clean culture, but cannot have fine fruit in a crowded orchard."

Transactions of the Nebraska State Hort. Society for 1877. — From Dan'l K. Wheeler, Plattsmouth. Beautiful plates of scenery in various parts of Nebraska adorn the volume, which gives also much valuable information as to the fruits best suited to that distant region.

The Microscopist's Companion.— By John Phin. Second edition. New York Industrial Company. This is but a small book—but as a microscope is now a part of the complement of every intelligent household, it will be of great value to many. Mr. Phin, the author, is a pains-taking and conscientious naturalist, and whatever comes from his pen is sure to be reliable. He is already known to our readers by one of the best works on wine making. We are glad to see the present little work in the form of a second edition, which shows that the public has appreciated his work as well as we.

Music.—"Dear Old Homestead."— Song and Music for the Piano. From F. W. Helmich, Cincinnati, Ohio.

A Good Michigan Nursery.—It is always a good sign to be spoken well of by one's neighbors, and this is what has been done by the *Michigan Farmer* for Bragg & Stearns of Kalamazoo.

Journal of Forestry.—We have before us the first number of this new English candidate for public favor, and considering the increasing interest in the subject of Forestry, have no doubt there is room for its success. If there be such a field, the present venture promises to fill it very creditably. The only suggestion we would make is, that there is a little too much of dependence on Loudon and older writers, when modern ones have contributed better material. It would be astonishing if these good friends had exhausted all knowledge, or made no mistakes. In an editorial here, Loudon is quoted as authority that the "Black Italian Poplar" is *Populus monilifera*. We all thought so in Loudon's time, and he was excusable, but no authority thinks so now. Populus nigra is the Black Italian Poplar—a European kind.

Pretty Feathers make Pretty Birds.—The *Poultry World* sends us copies of the chromos they intend to give as premiums next year, and we must say that they are very nicely gotten up, and will, no doubt, be an acceptable gift to bird fanciers.

L. B. Case, Richmond, Ind., sends us his greenhouse catalogue, which is worthy of special notice for the great amount of useful information it gives about the plants offered for sale.

SCRAPS AND QUERIES.

Fruiting of Akebia quinata.—A number of correspondents send us fruit this season. It must be a rare season for it. One suggests that probably insects have been more abundant or active in cross fertilizing, but we prefer to believe it is a question of nutrition.

A Twin Apple.—B. F. L. sends us an apple with a small one growing out of it near the base. It is useful as showing by how many ways nature will bring out similar experiences. In the apple and the pear, orange and other things, the branch which normally is arrested in its growth when it is turned into a fruit, still retains a little of its original elongating power. In this case the twin is formed by the development of two branch buds from near one base. It is not easy to explain these things in a few words, unless the reader has already some idea of vegetable morphology.

Twin Peach.—A South Carolina correspondent sends us a sketch of a twin peach. This is another illustration of similar effects from different physiological law. In the apple we have five divisions in the core, and each of these divisions (carpels) is formed of an original single leaf. There is no other reason why the peach has not five peaches side by side arranged somewhat as the apple core is, except abortion. In the case of this twin peach two have been produced, and we have seen as many as three together, and would not be surprised some day to see five together, but should be to find more than this.

The Kentucky Coffee as a Fly Poison.—Miss A. says:—"When in Virginia last year the negroes told me that the Kentucky "locust," as they called it—Gymnocladus Canadensis—was boiled, and the juice mixed with molasses and set for flies to drink, by which they were poisoned. It is the great fly poison with them."

Fertile Hydrangea.—S. sends a head of hydrangea in which the flowers are very nearly all fertile. We may explain that the large rosy

flowers which commonly form the head of hydrangea blossoms are male or neutral, the female or fertile flowers being very small and not seen unless they are searched for. These fertile flowers vary in number with every head, and in this instance have assumed unusually large proportions. The laws which govern these varying proportions are in some way connected with nutrition, but the exact way in which they operate has not yet been discovered.

Beggar Ticks vs. Beggar Lice.—Mr. George Woodruff, Mount Airy, Philadelphia, writes: "Apropos of the discussion on Tumble Weed, which shows how beautifully 'common' names don't identify plants, I notice that in the August number you speak of the Cynoglossum as a forage plant, and call it 'the common Beggar Ticks.' Now, I had known a certain weed as 'Beggar's Lice' since I could remember, and 'guessed' that was it. Turning to Gray, I found not only that he used the two names for different plants, but that he applied the name B. Lice instead of B. Ticks to Cynoglossum using 'B. Ticks' for Bidens, which is the weed I know. As both are 'vile weeds,' I don't think many people will wish to sow either; but we again see the difficulty of identifying plants by 'common names,' even when they are as 'nice' as the foregoing."

[In justice to Prof. Gray, it should be stated that in the use of popular names he scarcely "applies" them, but records the name as generally applied by others. It is almost impossible to follow up popular names, and it is this fact which makes botanical names so necessary, hard though, confessedly, they often be. We were asked the other day for some information about the "McDermott Weed." We had to waste time in sending for a specimen, and received our old friend from Mexico—*Galinsogoa parviflora*—with the information that it "first appeared on the ground of a Mr. McDermott." Now we know that it has been abundant around that very spot for thirty years, and how much longer we do not know, so that popular names, even when they are supposed to help popular history are of no value at all.—Ed. G. M.]

Horticultural Societies.

EDITORIAL NOTES.

The Nashville Meeting of the American Pomological Society in 1879.—J., Harvest Home, Tenn., writes:

"The Editor hardly does justice to himself in his note on the meeting in Baltimore. It was evident that only for the warm terms in which he spoke of the Southern people and the prospects of Southern Pomology and Horticulture, would the meeting have so unanimously agreed to go there, and I am sure in this you will have earned the grateful regards of the whole Southern people."

The Editor deserves no special credit for his speech on that occasion. It was only that he had a recent experience, and gave that experience to the members. Much more credit is due to those who in such numbers voted for it; because they had to take on faith what the "Editor" told them, and in this sacrificed their own feelings as to where they would like to have the next meeting held, solely because they believed their Southern friends wished to have the meeting South. Some friends think we have staked a great deal in promising a good meeting at Nashville, but we are well assured they will not be ashamed of what the South will do on that occasion.

The Paris Exposition.—Though nurserymen cannot exhibit trees at this exhibition, there is time if Congress act, for other departments of nursery or seed business. The impression that we are behind other countries in these branches is, in many respects, a mistaken one, and we hope as much will be done as possible to set the world right. The American Legation at Paris, will see that any American who may want to exhibit, has justice done him—in case Congress in October appoint a Commission. Applications may go through Salmon & de Stnckle, 23 Park Place, New York, or Ostheimer Bros., Bank Street, Philadelphia.

City Plant Growing.—*A boy takes the Silver Medal.*—The London *Journal of Horticulture*, tells us that the Seventh Annual Exhibition of Window Plants grown within the city was held on the 13th inst. in the gardens, Finsbury Circus. The Duchess of Teck, who was announced to distribute the prizes, arrived early in the afternoon. A splendid bouquet was presented to the Duchess by Miss Davies. The Duke of Teck, replying to some observations of the Lord Mayor, observed that the difficulties of cultivation were great, particularly in a place where bricks and stone had almost banished every vestige of vegetation. Here it was that the influence of flowers was most felt. They all knew their tendency to brighten the home and cheer the sick. The Royal Horticultural Society's silver medal was awarded to a youth named Jarvis for the best plant.

THE

GARDENER'S MONTHLY
AND
HORTICULTURIST.

DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

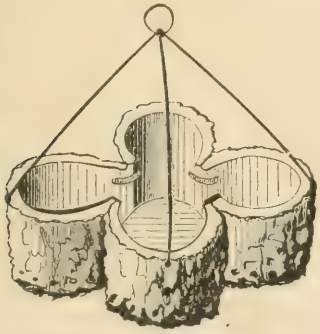
Edited by THOMAS MEEHAN.

Vol. XIX. DECEMBER, 1877. Number 228.

FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

There is not much to be done in this department during December, especially in the North



where the Winters are severe. When the weather is fine, pruning of such things as require

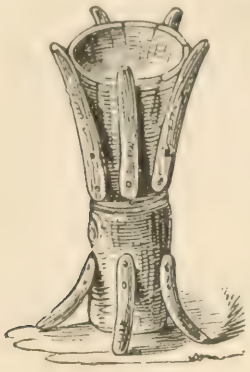


it may be effected. Street trees are often cut back. They look badly afterwards, and are offensive to good taste. And yet it is often a necessity from our first choice. We want shade to our front doors and piazzas, but we choose tall-growing and fast-growing trees, and before we hardly know it, all the shade is to the chimney-



top. There is then no remedy but to cut back the tree to near the main trunk, if we would have the shade near the ground. Then some pruning may be done in the way of thinning out. Trees are generally and properly set thickly at first, both for shelter to one another and immediate effect. At this season some of the least needed may be cut away. In some wild part of the ground a well constructed rockery would not be out of place but look well, and material may be gathered together for the purpose. If there be handy men about to be kept in employ, rustic baskets, vases and frames may

be made of tree prunings and other waste materials. Many of our books on garden embellishments are full of these, and we give several herewith but rustic work, generally, is best when



original, and not made after copy, but the design should rather be suited to the material on hand.

COMMUNICATIONS.

HOW BEDDING PLANTS MIGHT BE ARRANGED.

BY C. G. BJORKLUND, NATIONAL SOLDIERS' HOME, NORFOLK, VA.

Great attention is at present devoted to growing and arranging bedding plants, due not only to the times, but partly, I believe, to some rivalism between cultivators since public parks were established in several of the large cities, where one rightly endeavors to excel another in tasteful arrangements, etc.

Not pretending to know better than *all*, but having devoted much of my time to this branch of Horticulture, and studied the different and popular modes of arrangements in several of the European countries, at the acknowledged best places, I wish, as taking a great interest in the matter myself, to give an account of my experiences regarding arrangement of bedding plants.

SPRING BEDS.

The practice of planting certain beds in the Autumn with bulbs, such as Tazettes, Tulips, Hyacinths, Narcissus, and Crocus, to produce flowers in early Spring, is so general and well known, that of this there is hardly anything to say; but there are many other plants suitable for the same purpose, such as Aubrietia purpurea, and several other species; Myosotis dissitiflora, Hepatica triloba, Convallaria majalis (Lily of the valley), Campanula pumila, Bellis nucubæfolia, Primulas, Wallflowers, etc. These will do well mixed with the bulbs for decorating beds intended for tender plants that cannot be put out until considerably later. In regard to the cultivation of said plants, it may differ in different localities. Some of them could certainly be planted in the beds in the Fall, and covered there; but it will be found safest to keep them in pots in a cold frame during Winter, and early in the Spring to induce growth, and plunge in the beds.

ROCKWORK.

Alpine plants may appear insignificant to the ignorant and uninterested, but have attractions indeed. They are often used for rockwork, or rather rockwork for them. This should be constructed wheresoever there is a chance. They not only grow better there, but appear to more advantage, and a rockwork is a good contrast to flower-beds and shrubberies. But to erect a regular pyramid, as we sometimes see on a level lawn, is not good taste. As the landscape gardener in most cases places a group of shrubs or trees at the bending of a walk, to make an apparent reason for the bending, so even here everything should be done to make it look as natural as possible. The top and sides of a cave is a good spot. If there is no hilly spot on the ground to improve for the purpose, it might be put up against a stone wall in lieu of a better situation.

Of Alpine plants, we have in the first place the Saxifragas, of which there are about one hundred and seventy-five varieties in cultivation. The following are very striking: affinis, Aizoon minor, Aizoides, circinata, crustata, cochlearis, geranioides, incrustata, intacta, longifolia, l. marginata, notata, pectinata, sarmentosa, flavescens, and umbrosa fol. variegata. Next in order comes the Sedums and Sempervivums. The best varieties of the latter are arachnoideum, arenarium, Brauni, calcaratum, cornutum, Delassiæi, globiferum, hirtum, hispidulum, Lamottei, Pamelli, and tectorum. But there are hundreds of others that will do well on rockwork; any low-growing herbaceous plant that will stand a dry situation will also do.

Those having had the opportunity of seeing the rockwork in the Botanical Garden of Edinburgh, Scotland, will never forget the sight there

afforded. The extent there is about one half acre of ground, the steps and walks in it being what some would call "labyrinthish." The rocks used are themselves a curiosity, gathered from all formations. Roll-stones, old logs and fossiled wood in the most artful way arranged, in great contrast, as well as harmony.

HERBACEOUS PLANTS IN GENERAL.

If there should be any borders in a flower garden these plants are best suited for them; but in my individual opinion, borders should be avoided as much as possible. There are certainly instances when a border is better than anything else, such as on the sides of an entrance walk where they should be backed by a hedge, along a wall, or at the foot of a slope; but where there is no real necessity for regular borders, so called "semi-borders," to lay on the lawns five to ten feet from the walk, will be found preferable. *Fig.* 1, gives an idea of such a combination. This, as it will be seen, has two rounded projections, which make it look as much of a bed as a border, and may be filled with shrubs, Cannas or

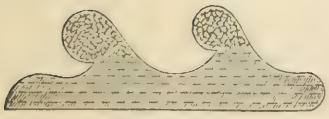


Fig. 1.

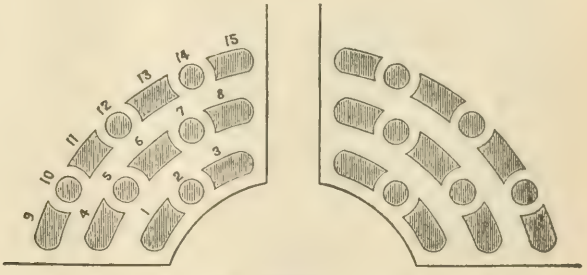


Fig. 2.

other tall-growing foliage plants. Besides the general perennials, Tuberoses, Lilies, Gladiolus, Hollyhocks, and ornamental grasses, etc., can be put on this border, and any old plant can be brought to fill occasional gaps here during the Summer. The plants should be planted in rows, with each patch of one kind as far from another as convenient, only taking the height of growth into consideration, so that the tallest be placed on the back row.

ANNUAL PLANTS.

Although these are partly neglected since the introduction of so many foliage plants, yet, as the latter become rather expensive to use at large, the annuals will keep their hold, at least in the private gardens; and an assorted collection of those that endure the Summer heat is very desirable. If this section be concentrated into a collection of beds as *Fig.* 2 indicates, it will prove to make a fine display. The scale for this is five feet to one-eighth inch, but can be on any scale as well as number of beds. It is supposed to be situated in front of a pavilion or a gate. If the ground slopes gently towards the main walk, or if there be a shrubbery a short distance behind the group, it will gain greatly in appearance. Suppose we decorate the designed beds with the following sorts. They are of the best annuals in cultivation: 1. Lobelia speciosa; 2. Antirrhinum Tom Thumb; 3. Portulaca grandiflora; 4. Phlox Drummondii; 5. Tagetes patula nana parviflora; 6. Petunia hybrida; 7. Helichryum monstrosum nanum; 8. Verbena (scarlet); 9. Ageratum Mexicanum nanum; 10. Aster Victoria (white); 11. Scabiosa nana fl. pl.; 12. Zinnia elegans fl. pl.; 13. Gaillardia coccinea nana; 14. Gomphrena globosa (purple); and 15. Dianthus chinensis.

The other half may be planted similarly, but in different colors. The seed should be cut away at least once a week, as this gives more strength to the flowers.

A NEW METHOD OF PROPAGATING EXOCHORDA GRANDIFLORA.

BY SAMUEL PARSONS, FLUSHING, L. I., N. Y.

It is not often that Americans claim to vie with the skill of French horticulturists, but we think it only fair to state the fact that Mr. Trumpy, of S. B. Parsons & Sons, Flushing, L. I., has long successfully root-grafted Exochorda grandiflora, which we now hear from English and French authorities, through the *Gardener's Monthly* of August, has been first employed by Monsieur J. Goujon. That others in various parts may have done the same, I do not ques-

tion, only when our French brethren undertake to sound their trumpets over some feat at last accomplished, it may be gratifying to learn that America has long been doing the same thing quite successfully. We do not wish to depreciate the value of the achievement, for it is undoubtedly the best method of propagating Exochorda grandiflora. All difficulties will not, however, vanish on this discovery, for much skill and judgment are required to select the proper roots and grafts to ensure success. In fact, it will probably long remain a plant somewhat difficult to propagate. This beautiful hardy shrub should receive more attention, and perhaps, with increased demand, improved methods of propagation may be devised.

IDESIA POLYCARPA.

BY MR. J. SAUL, WASHINGTON, D. C.

Tree lovers will be pleased to know that this beautiful tree is quite hardy. My specimen plant has been out three Winters uninjured. The past Winter a lot of young plants were left out without the slightest protection, and they came through uninjured. This tree, when better known, will be largely planted. It is of rapid growth, with clean, shining, green foliage, which stands our hot Summers, without burning or being in the least injured—a point of great importance in foreign trees—and so far no insect has touched its foliage.

MY GARDEN.

BY ETHEL ALLEN.

O my bonny, bonny garden!
Dearer to me from this hour;
For my true love he doth covet,
From thy beds a flower.

Shall it be a white rose, dainty,
Gracious queen of all her kind?
No, I'll have thee not, because thou
Sadness means I find.

Crimson roses, why so eager,
When their merits I discuss?
Could I choose them when they to him
Say, "Love's dangerous!"

Nodding harebells, blue and fragrant,
Will they come to my relief?
But, alas! their pale sweet blossoms,
Do but breathe of grief.

Evening primrose that so softly
Opens quick this world to see,
Thou art lovely, but would whisper
Of inconstancy.

O, blue violets, meek and lowly,
How their presence now I bless!
For in confidence they'll tell him
Of my faithfulness.

DOUBLE CHINESE PRIMROSES.

BY F. W. WOODWARD, EAU CLAIRE, WIS.

In your editorial notes for October you speak of there being none so good as the old double white kind. You cannot have seen the seedling raised by John Saul, of Washington, D. C., called Mrs. John Saul. I have grown this for several years, and find it much superior to the old white. The flowers are larger, more double, beautifully fringed; they open pure white, changing to a delicate rose color with age. Mr. Saul has two new seedlings which are described as having flowers as large as a Carnation, and perfectly double. These I will be able to report upon when they bloom. All my primroses, double and single, have been out of doors all Summer, on the north side of a building, getting the sun for a couple of hours, morning and evening. They have made a wonderful growth, and promise abundant bloom. In Winter I keep them in a cold house, with a temperature of not over 45° at night, and frequently down to 35°. If taken to a warm greenhouse the blooms dwindle in size, and the plants suffer in health.

EDITORIAL NOTES.

VITIS HETEROPHYLLA (See frontispiece).—Under the name of "Variegated Grape," this has been known for some time in American gardens. We have chosen it for a frontispiece to our volume because its great merit in ornamental gardening is not near as well known as it ought to be. The leaves are first green, but when the plant has something to run on, and grows vigorously they are prettily feathered with white. The deep, sky-blue berries towards Fall, give it additional attractions. It grows with great rapidity, very soon covering an arbor or trellis. It is a native of the north of China and Japan, and is perfectly hardy here.

According to authors it varies very much in different districts as our grape vines do here, and hence there are many synonyms, authors having supposed they had distinct species. In such cases the rule is to take the oldest name, and drop the rest. It is being advertised in England as Vitis humulifolia; but as Thunberg's name of V. heterophylla, is the oldest, it is the one we must adopt. It so happens that the name of heterophylla or various leaved, is quite appropriate, as our native-leaved Vitis indivisa is nearly allied to it, and never has variously divided, but always entire leaves.

Our Autumns.—In England, a frost on the 24th of August, destroyed Dahlias and similar things. Here, as we write on the 5th of November, we have Dahlias, Honeysuckles, Scarlet Sage, Geraniums, in full bloom, and bright-leaved Coleuses, and other things still giving a charm to the garden. There are many beautiful features in English gardening which make an American's heart pine with envy, and our object in making this comparison is to show that we have some good things also. There are few more enjoyable things in the world than an American garden in Autumn.

Fall Colored Bedding.—One of the most beautiful plants for massing for Fall colors is the common Dogwood, cut down and kept pinched low. It has a far more beautiful color than when it grows up in the natural way. The delicate wine color is quite equal to the dark blood-colored Japan Maple. We are writing of the Cornus florida.

Beauty by Moonlight. — The *Gardener's Chronicle* says that one of the most beautiful sights among trees, is a fine specimen of our variegated Box Elder (Negundo), seen by moonlight.

Anemone japonica.—On the grounds of Mr. Sam'l Chew, of Germantown, there is a bed of Rhododendrons, and among them is planted the rose-colored Anemone japonica. From the public road the effect is just as if the Rhododendrons were in bloom. On the grounds of Miller & Hayes there is a white variety also in bloom. It is one of our best October flowers.

The Crimson Boursault Rose.—We have occasionally noted how well this variety is adapted to the American climate. There is no more beautiful sight than a wall of Boursault Roses in June. Of course it is not an ever-blooming rose, or it would not flower so abundantly when in bloom. But it is entirely hardy in these parts, and besides its vigorous growth has a fine green foliage.

Growing the Victoria Lily in the Open Air.—Mr. E. D. Sturtevant of Bordentown, N. J., grew a plant of this celebrity in the open air this season, in a tank of brick 20x30 feet. He had leaves over three feet in diameter. He proposes to try to winter it without an expensive house for the purpose. The experiment will be watched with much interest, and its success earnestly hoped for.

Wistaria Sinensis.—A correspondent of the *Gardener's Chronicle*, says the Chinese Wistaria is really indigenous to Japan, and not introduced there as formerly supposed. It seeds freely in a wild state.

NEW OR RARE PLANTS.

Mentha Gibraltica. — This is the newest "massing" plant of the season in England. It is a pale green, and has some resemblance in odor to our native "Pennyroyal."

New Weeping Oak.—A new weeping variety of the Turkey Oak is recorded as one of the latest valuable novelties among trees in the English gardens.

Golden Tulip Tree.—The Golden Tulip tree of Van Houtte has green leaves, but margined with golden yellow.

Pachystima myrsinites.—The writer of this found the above-named plant growing luxuriantly in the mountains of Utah, but doubted whether it would prove adapted to culture in the Eastern States, and so made no special effort to introduce it; but we see that it extends far up into British America, and so should do well with us. It is a pretty dwarf evergreen, of the Celastraceæ, of which our Euonymus or Burning Bush is a familiar representative.

SCRAPS AND QUERIES.

The Ivy.—J. J. S. writes: — "Incidentally, Mr. Editor, I notice it is generally conceded that the Ivy proper is not exactly hardy in our Philadelphia latitude. Permit me to say that my

experience confirms this; but after forty years perseverance, the hardiness depends on giving the root sufficient space, manure and support. By planting a few feet from the tree or verandah designed to be covered, I find a marked improved hardiness."

[This is an excellent hint and applicable to all trees. A half starved plant of any kind always suffers more from untoward circumstances than one well fed. The most losses in transplanting trees are from those that are taken from poor ground.—Ed. G. M.]

EXOCHORDA GRANDIFLORA.—Mr. E. F. Luckhurst, foreman to A. Hance & Son, Red Bank, New Jersey, writes:—"I noticed an article in your *Monthly* of August last, an account of propagation of Exochorda grandiflora by a French horticulturist. He says the end of Winter or commencement of Spring is the most suitable time for putting in the grafts. All I have to say is, I grafted, two years ago last January, several hundred, and raised about eighty per cent. of them."

FLOWERING OF OLD HYACINTH BULBS.—Mrs. R., Springfield, Ills., asks:—"I am told that Hyacinths, after blooming in bottles, are no use any more, and have always thrown them away. But I do so dislike it. Is there no way to save them and make them flower again?"

[In the hands of those who understand it, they could be made to do quite well; but it is hardly worth your while to try. Not even as a matter of trade have Americans been able to beat the the Dutch—though there were hopes of it some years ago in New Jersey. If you would like to try your hand, as a matter of horticultural exercise, plant the bulb in a pot of earth as soon as it has done flowering, and keep it growing as long as you can. Next year take an offset and grow it in as good earth as you can get, and so keep on next year, and do not let the offset flower till it makes a good strong bulb. In a few years you would get it as good as a Dutch root. —Ed. G. M.]

PERISTROPHE ANGUSTIFOLIA.—B. says:—"If you will please inform me in the *Monthly* of the name of the plant of which I enclose a piece, I will be very much obliged. It is of a low spreading habit, having blue flowers somewhat like the Lobelia."

[This is Peristrophe angustifolia—a plant of the Acanthus order, with variegated leaves, and a capital thing for bedding, where few other things will stand the sun.—Ed. G. M.]

THE SEXES OF SALISBURIA.—Prof. Sargent communicates the following:—"One of the Salisburias, planted some twenty years ago in the grounds of the Kentucky Military Institute at Farmdale, Ky., and now thirty feet high, proves to be a female, and has fruited this year for the first time. I am not aware that this interesting tree has fruited before in the United States, while in Europe specimens known to be female are still very rare. Through the kindness of Prof. R. H. Wildberger, specimens of the ripe fruit are before me. Its fleshy outer covering exhales an extremely disagreeable smell of rancid butter, but the kernel is excellent with the flavor of Filberts, although more delicate. In Japan the kernels have reputed digestive qualities, and are very generally served at dessert. The cultivation of the 'Ginjko' for its fruit is one of the possibilities of American Horticulture, and is, perhaps, worth consideration."

GREEN HOUSE AND HOUSE GARDENING.

SEASONABLE HINTS.

It is too soon for window plants to get into trouble yet. They generally look well till after New Year, after being brought in during October. But soon, over-watering, or under-watering, or the effects of minute insects, or waste gas from the burners, or sulphurous gas from the heaters or stoves will begin to tell, and there will be trouble. As these are about all the difficulties in window-plant culture, one soon learns to avoid them, and indeed nothing but a real love of window-plant culture will enable any one to learn. It is what the best of magazines, with the smartest of editors cannot teach.

It is a good season to watch for coming troubles. As soon as the slightest thing seems wrong, search at once for the cause of the trouble. They are often but small, and easily remedied at the outset.

There is not much requiring special care in the greenhouse. The Camellia is very apt to drop its buds if the atmosphere is too dry; but generally dropping follows any check to the roots by which the regular flow of moisture to the bud is stopped. This may be either too little or too much water; if too little, of course there is not enough moisture; if too much, the fibers are liable to have their points injured, and thus are unable to draw moisture to the bud. Usually the last bad results follow from over potting. With a large mass of soil, water is apt to not pass readily away, when the soil "sours," as it is termed. A pot full of roots will seldom drop the Camellia buds for any other cause than too little water.

A great enemy of the Camellia is the Red Spider. The leaves indicate its presence generally by a brown tinge, when the pocket lens, which every gardener of course carries, readily detects. All plants are more or less liable to these insects, as well as the green fly, mealy bug, and scale. The best way to keep them down is by a free use of the syringe in fine days, using water in which some sulphur has been strewn. Tobacco smoke is still the best cure for aphis. Scale is a very troublesome pest; water heated to 130° is still the best. This injures very tender leaves, but the scale is rarely on such, it usually keeps to the branches or in thick leathery leaves.

Tree Carnations,—these are now indispensable winter flowering plants, want a very light place to do well. They do not generally care about very large pots—about five or six inches—but they are very much benefited by rich manure water.

The Calla Lily is now extremely popular. This also loves light. It must have a good supply of water, and good soil to flower well.

Towards Spring the Cineraria comes in remarkably well for cutting. This is a "queer" plant. It is one of the easiest to suffer from frost, and yet will not do well in high temperature. It also requires much light, and to be very near the glass. So also of the Pansy and Violet, although some frost will not hurt these.

If Pelargoniums are wanted to flower well next May and June, they should be attended to, and grow well through the winter. They want a rather warm house to keep them growing, and should be pinched back as they grow, to keep them bushy.

A good supply of young Fuchsias should be coming on now; re-pot as their roots fill each pot, let them not want moisture or light; do not pinch off their tops, but let them grow rapidly. The temperature in which they are grown should not exceed 55°. A turfy loam, moderately enriched with well decayed manure, and well drained with charcoal, suits them admirably.

COMMUNICATIONS.

PROPAGATION OF RICHARDIA ÆTHIOPICA—THE CALLA LILY.

BY W. M. MARSHALL, MOBILE, ALA.

Seeing an article in your last edition on the propagation of Callas, I thought I would let you know of my success. I had but one Richardia maculata last year; it bloomed and produced seed, a few of which I planted this Spring, having first soaked them in boiling water. Twenty came up, and I planted them in a shady, damp spot. They are all doing beautifully, and have produced such large bulbs that I think they will bloom next Spring. This is a much faster way of propagating them than that which you gave.

EDITORIAL NOTES.

PRICE OF FLOWERS IN AMERICA.—We are continually reading the most astounding things of American habits, customs and things, in European papers, and as none of us can see the beams in our own eyes, wonder whether American papers are as inaccurate when treating of things European. Here is Mr. H. J. Van Hulle, in *L'Horticulture Belge*, who says the American cares very little for growing plants, which, as compared with European taste, we may pass as not far wrong. Then, he says, they have an intense passion for cut flowers, and arranging them in some fashion or another. He names Philadelphia, New York, Boston and Washington, in which this extravagant taste was found to exist. $5,000 was paid at the marriage of a rich heiress for bouquets and other floral decorations. Towards Christmas and New Year's the cut flower trade reaches its height (*atteint son apogée*). The

smallest bouquet costs $6, and $25 for a little bouquet is not rare. Plateaus of flowers bring $120 to $150, and $250 for flowers to decorate a grave.

During the Winter, for a single rose-bud, with a dozen violets, a piece of Mignonette and Heliotrope, you pay one dollar. The cut flower business of New York florists alone, in a single year, amounts to twelve million dollars.

It would not be fair to say that such prices never were paid in the four cities named; but we are sure they were quite exceptional, and only paid under some peculiar stress of circumstances, but it is not true of the average prices of cut flowers, and it gives an exaggerated view of the whole business. We much doubt whether the receipts for cut flowers in New York reach one million dollars a year, to say nothing of twelve! If any one who knows, will give us in detail the figures, we shall gladly stand corrected.

Pampas Grass.—We note that there is an increasing demand for the spikes of Pampas Grass for decorating. First-class spikes, properly dried, are worth about $25 per 100, but they have to be truly first-class to bring these prices.

Thomas Hogg Hydrangea.—This is already getting so abundant as to find its way to the auction block. 1,000 went off this way recently in New York.

Curious Effects of Grafting Coleuses.—The novel and interesting paper on this subject, on page 298, was credited to R. H. B., in *Gardener's Magazine*. As a stray disease will strike the healthiest, so these troubles will now and then fall on the most wide-awake editor. In this instance the *Garden* should have had the credit.

Popular Appreciation of Cheap Flowers.—The *Journal of Horticulture* tells us Dahlias have been sold in the streets of London in immense quantities within the past few weeks. The costers' barrows, heaped with them, have made an unwonted display of color in the streets, and the low price charged for them has caused a quick distribution of the bunches to windows and sideboards.

The Tritoma in Decoration.—A friend informs us that the Hall in which a recent conference of Unitarians was held in, at Springfield, Mass., was decorated wholly with flowers of Tritoma uvaria, and that the effect was unique and pleasing. She also asks for the meaning of Tritoma. The word is from the Greek, and is supposed to have reference to the three edged upper portion of the leaves.

Spring Bulbs.—Among the bulbs we note as offered by the dealers this year at rather lower prices—which show they are getting commoner than they were—are Pancratium Illyricum and Scilla Peruviana. They are hardly hardy enough for out-door work, but are fine cool greenhouse things.

Flower of Fourcroya.—Under the name of Fourcroya cubense, Mr. Chas. P. Hayes, of Miller & Hayes, places on our table a few very interesting flowers. The sharply three-angled ovarium and the thick bases of the stamens will interest those who like to look into structure, and even those who can see no beauty in a green flower, will be pleased with the delicate fragrance. The plant does not flower often, resembling in this the Century plant, and probably as in the case of the Century plant, will die down after flowering.

NEW OR RARE PLANTS.

Stenocárpus Cunninghami.—This beautiful exotic is now in bloom in the greenhouses of F. L. Ames, Esq., at North Easton, Mass. It belongs to Proteaceæ, is a native of New Holland, and after it attains a considerable age, bears candelabrum-like umbels of orange-scarlet flowers that are vividly colored, curiously shaped, and very pretty. The leaves are leathery, evergreen, entire or sinuate, quite ornamental, and somewhat resemble those of an oak. In 1828, this species was discovered by the late Allan Cunningham, on the banks of Brisbane River, Moreton Bay, and who, without seeing the flowers, describes it thus: "A slender tree of most remarkable habit, with large leaves from the extremities of the branches, glossy and lobed, or laciniated." More recent travelers describe it as a lofty tree bearing terminal and axillary umbels of deep orange flowers.

It is, however, seldom met with in cultivation, and much less frequently seen in blossom in greenhouses, owing no doubt to the fact that the trees must attain a goodly age and size before they blossom.

A few days ago Mr. Alfred J. Edmonds, Mr. Ames' gardener, sent to us an umbel and leaves

for identification, and afterwards at our request for some particulars regarding their plant, obligingly sent the following:

"The flower and leaves that I sent to you came from Mr. Menand at Albany, but since then Mr. Ames has bought the plant. It is quite large—about seven feet high by four feet through, and has a good head. The stem at the base is eight and a half inches around; at two feet from the ground it begins to branch, the branches being more inclined to grow upwards than horizontally outwards, but if they were trained they would make a fine head. Mr. Menand says it keeps flowering all Winter, the blossoms being produced on the old wood, five or six clusters on a stem. Just now they are growing on the two-year old wood, and one cluster on the three-year old wood. You say it is of slender habit; but our plant is just the reverse, the wood being very strong and shrubby, and the two and three year old wood is furnished with leaves, say twelve or fifteen inches down the stem."

SCRAPS AND QUERIES.

CURE FOR MEALY BUG.—"Reader" writes:—"Is there any cure for mealy bug? I have a fine lot of Bouvardias that are badly infested by these pests. I am using whale oil soap. Is there anything better? Please advise in your next *Monthly* and oblige.

[We must say that we have never had a remedy for mealy bug that was entirely satisfactory. If taken in time they may be easily kept down; but when they once get possession they hold it pretty well. Diluted spirits of wine is fair.

If any of our readers have a really good remedy, easy to apply, we shall be glad to know.—Ed. G. M.]

FRUIT AND VEGETABLE GARDENING.

SEASONABLE HINTS.

Where fruit trees are grown among vegetable or farm crops, they will generally take care of themselves, and seize on some of the food intended for the crops; where nothing else but trees are grown they should be top-dressed occasionally. It pays to feed orchards as well as other things. The season of leisure is a good one to do it in. The best kind of manure for the purpose is that which can be had the easiest. Where no crop whatever is taken off, coal ashes are good. It is said there is no fertilizing material in coal ashes, but somehow trees grow wonderfully when top-dressed with them.

Young growing trees are very much benefited by having their bark slit by running the knife up and down freely, they must not be cut cross-wise or horizontally; also they are much benefited by having their trunks and main branches washed with whitewash, sulphur and soot. These are "old fogy notions," but try them and blame us if they prove wrong. Where branches have grown too thick, cut out the surplus ones. If this happens to be a large branch paint the scar to keep it from rotting till the wound heals over. If the trees are large, and the old bearing wood seems weak, cut some of it away and encourage young vigorous branches from the interior to take their place. If you have a large orchard of plum trees it may pay to keep a person in early Summer jarring the trees. If you have but a few trees, it is better to invest fifty cents in mosquito netting to cover each tree with, and you may now keep this in view in pruning time, and cut your tree so as to best suit your net. Look after the labels. Much of the interest in an amateur's orchard is in knowing the names. After years of observation and experiment we have found no fancy labelling so good as a good piece of pine wood, about six inches long, one inch wide and the eighth of an inch thick, the name written when fresh painted with white lead, and a piece of very thick copper wire ran through the end. It should be hung around the trunk over a fork, and with a loop many inches round, so as to give room for many years increase in the diameter of the stem. On this the names may be written so large that he

who runs may read, and if well done such a label will remain good for ten years at least.

Very little can be done in the vegetable garden.

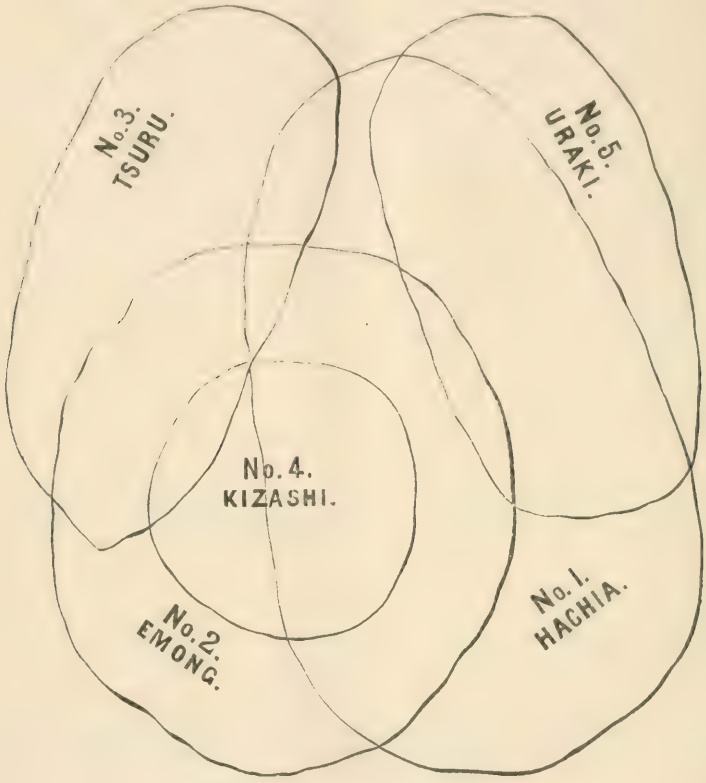
Manure can be placed on the ground wherever required, and Asparagus beds, if not already done, should have a slight covering of it. Bean poles, Pea-brush, and stakes of all kind should be got now, the tool house gone over and put in order, and everything kept in good order and studiously in its place. When the season of operation commences, there will then be nothing to hold back the attention.

Where there can be heat of 60° commanded, Bush Beans can be usually grown in pots, and can be gathered in two months from time of sowing.

If there is abundance of leaves or manure at command, and small frames, beds may be put up for early Spring salads, at the end of the month.

Radishes and Lettuces are, however, very impatient of too much heat; they will come on well if the temperature be kept at 45°. When it goes above that, the sashes should be lifted entirely off.

The same remarks apply to the Potato and the Early Horn Carrot.



Cauliflowers in frames require all the air possible. Never allow them to become dry; this is the cause of many failures by way of "buttoning off."

COMMUNICATIONS.

THE DIOSPYRUS KAKI, OR JAPANESE PERSIMMON, IN CALIFORNIA.

BY MR. C. H. SHINN.

I send you outline drawings of the five best varieties of this new fruit. They are fac-simile reproductions from the original Japanese drawings on the seed bags of our last importation. No. 1, Hachia, is soft when ripe; No. 2, Emong, has fruited in several places, and is the largest variety; Nos. 3 and 5 are chiefly used dried, or,

as our Japanese correspondent expresses it, "Much for dry;" No. 4 is the best flavored.

We have been growing the first two of the above-named varieties for five years past, and last year imported also the seedless variety, which is propagated only by buds and grafts. Our experience so far has been that the persimmon requires no more careful cultivation than an apple, but must have good management when transplanted. The future of this fruit will depend upon whether the American palate admires its flavor; but on this point Commissioner Capron writes that "It is the best fruit Japan has, and is well worthy of introduction."

The persimmon has also shown itself to be a beautiful ornamental tree, with dark glossy leaves, and upright, graceful growth. It attracts instant attention from every visitor.

NOTES FROM KENTUCKY.

BY MR. C. P. HALE, CALHOON, MC LEAN COUNTY.

It has been a long time since I have written you on any subject, so I concluded to write you a few lines on one in which I am interested and wish to see others interested—that is fruit-growing. Now you may think I am making a heavy call on the *Gardener's Monthly*, but I have been postponing it so long that I cannot desist now. You know that almost every fruit-grower in the whole country wishes to know what every other one is doing, his prospects in early season and his success in late season. Now how are we to get this information unless the *Gardener's Monthly* (being a national paper) collects reports from all sections or all of the States of the Union, and publishes them for us, Spring and Fall, if not oftener. Now, is this asking too much? Can it be done? If so, I think it will be of great interest to your readers, especially those interested in growing fruits. I will give you my report, which is limited to a very small section.

The apple crop was large in early Summer, but has decayed and wasted away from the heat and moisture of Summer and early Fall. Peach trees full in just a few sections on high lands; in all others killed in bud. Grapes killed in bud in many places; crop small and inferior. Some varieties of pear trees were quite full, and of very good quality; crop under average of good seasons.

Now let me change subjects and brag a little, and I will quit. Can you beat it? Last Spring I started a Caladium root about two inches in diameter in a six-inch pot, in a sweet potato hot-bed. I let it remain until it made five shoots about three inches long. I then transplanted it in a bed of old leaf muck about five feet square and ten inches deep. Now after having lost several leaves, it has twenty-three large leaves and stems, and several small ones. The longest stem is over 61 inches, or 5 feet 1 inch long. The longest leaves are 41 inches, or 3 feet 5 inches long, and 30 inches, or 2 feet 6 inches wide, by the English rule.

OHIO NOTES.

BY M. B. B.

Pardon me for saying I think there are three mistakes on page 304 of *Monthly* (for October). I have traveled much in Ohio this Summer, and the only man I have seen or heard of as fruiting the Thwack Raspberry (Frank Ford, of Ravenna), says it is *too poor* in quality even for market, and such was certainly my own impression of the few late berries that I tasted there.

2d. Montmorency Cherry certainly is not "sixty days" earlier than the Early May, as the latter ripens in Southern Ohio the 1st of June. It may possibly be *six* days, but of that I have doubts.

3d. I have seen and eaten Mushrooms in various countries, cultivated and wild, and the weight quoted from the English paper must certainly have been intended for *ounces* instead of "pounds."

I think you must have meant to say the Gregg Raspberry was approved by Ohio growers, which is true.

FRUIT CULTURE AMONG FARMERS.

BY JAS. M. HAYES, DOVER, N. H.

As I have attended the agricultural fairs this Fall, I could but notice the wonderful improvements that have been made in a score of years by our farmers in fruit culture. It seems but a short time since, that the only apple cultivated was the wild native Crab, whose only use was the manufacture of cider to be guzzled down by the farmer and his neighbors around the kitchen fire on Winter evenings. Now our farmers drink less cider and raise more fine apples. Almost every farm has its orchard of apples,—Baldwins, Greenings and Porters being as common as the natives a few years ago. Of pears there has also been a noticeable improvement. Formerly the

Perry Pear was the only variety raised; now we often hear our farmers talking of their Duchess and Louise Bonnes, like veteran pomologists. Then the only grapes we had were those that grew wild around our rivers, worthless and foxy; while now almost all our farmers have vines of such improved varieties as Concord, Hartford and Delaware; and many of them are well versed in pruning and the care of vines. All this goes to show that there is intelligence among our rural population, that they read and study. It is further proof that the work of our horticultural and pomological societies for the past few years is having its effect upon the farm. Well may our leading fruit growers feel encouraged to labor on in the good cause, when they see upon every hand the results of their efforts."

[Does our correspondent mean that the "wild native Crab" was "cultivated" by Maine farmers? or should it read inferior varieties of the cultivated kinds?—Ed. G. M.]

NOTES ON THE SEASON.

BY A. HUIDEKOPER, MEADVILLE, PA.

The year 1877 has witnessed in this region as little grumbling about the weather, and things dependent on the weather, as any season we have ever known. The field crops have been sound and abundant; potatoes of the best quality, despite the Colorado beetle, selling at twenty-five and thirty cents per bushel in the market; and the supply of all fruits, with the exception of apples, has been better than usual. Although the nights have been cool, and the Summer temperature below what it was last year, fruits have ripened this Fall from a week to ten days earlier than they did in 1876.

I give brief notes on some fruits on my own grounds. Readers will bear in mind that local results are only partial tests:—

PEARS—*Buerré Giffard.*—Good bearer; fruit fair; early; medium sized; moderately good; juicy.

Tyson.—Good yield; fruit hanging in clusters; medium sized; sweet; handsome; very good.

Seckel.—Good crop; good size for the variety; juicy, sweet and high flavored; very fine. This variety often suffers for want of thinning out the fruit.

Bloodgood.—Not so good as it was years ago.

Howell.—Handsome in shape, but about as astringent as the Onondaga.

Duchesse d'Angoulême.—Good crop; fruit large, juicy, sweet; very fine.

Clairgeau.—Good bearer; large fruit, but rather dry for one reputed juicy; second rate.

Columbia.—Slow to bear; smooth, green-colored fruit. A few specimens showing the historical tendency to large cracks.

Lawrence.—Early bearer; fair, medium sized fruit, not mature enough yet to judge of quality.

Nelis.—Generally a shy bearer though profuse in flowering. This year shows a heavy crop. Size medium, juicy, sweet, high-flavored. Though labelled *Winter*, I suppose I must have the *Autumn* Nelis, as the fruit matures fully in October and November. I place this fruit where Downing puts it, "as the Seckel of the late varieties."

STRAWBERRIES.—Magnificent seems the proper term for the large and long-continuing crop of this fruit placed in the market here this season. Wilson's Albany waged an unequal contest with Monarch of the West, and other giant novelties of late introduction.

GRAPES.—*Delaware* takes the lead for quality of all the out-door varieties. Good culture, cutting out all the old wood and much of the new; and thinning out the clusters will increase the size of this fruit one half. Experiments with seedlings ought soon to give us a fruit of the same excellence and double the size, as a substitute.

Christine (or Telegraph).—This variety is productive but sets too thickly, and drops off like the Hartford. It may be good for wine, but is not good for eating here.

Iona.—Colored well; was good sized and good looking, but is a thin grape lacking character.

Underhill's Seedling.—This variety is hardy and productive; fruit a cloudy red color, and being very spicy or aromatic has too much taste to be agreeable as a table grape.

Israella.—Bears well, and ripens well, but has not much character to it.

Rebecca.—Is a poor bearer; late in ripening; was eatable this season, though never before for some half dozen years that it has fruited here.

Hartford Prolific.—Worthless; dropping its worthless fruit as soon as well colored.

Crevelling.—Set better than usual, and ripened well; moderately good; does not keep well.

Herbert (Rogers' 44).—Ripened well; open bunches; fair fruit with a bloom on it; tolerably good.

Ontario.—Very large bunches and fruit ripened pretty well. Better in character than many other of the fox grapes, but only so, so.

Concord.—Though coarse, this still appears to be the grape most generally cultivated. If the juice be separated from the skins as soon as the grapes are mashed, it makes a brilliant *white* wine that will keep, though to many tastes it would be improved by the addition of sugar, which is only supplementing nature, and not *adulteration*.

Rose Chasselas.—Though a foreign variety, this will ripen out of doors, and have a higher color than when grown under glass; but it has not much flavor grown in a vinery, and has still less if fruited out of doors. Under glass it is a very beautiful rose-colored fruit, refreshing to be eaten on a journey; and if supplemented by a bunch of real *black* Hamburgs with a blue bloom, and a bunch of amber-tinted Buckland Sweetwater grapes, artistically gotten up with green foliage, serves to make a nice fruit bouquet to offer to a young lady on the occasion of her wedding.

The September number of the *Gardener's Monthly* contains a very sensible article on grape culture under glass. Severe thinning (a very good fault), being perhaps carried to its ultimatum.

With regard to your inquiry about the Gros Colman grape, I think Mr. Saunders who has it in his collection can answer better than I. Something (not now recollected) that I heard about it prevented my getting it.

The results with it in England, reported at page 242 of your August number have been surpassed in this State, probably.—See *Gardener's Monthly* for 1866, p. 122, for specimens presented to editor by Mr. Zug, of Pittsburg. With its extra size to command it, it must have some drawback, or it would be more commonly grown.

EDITORIAL NOTES.

Twig Blight on the Apple Tree.—It is singular how regularly this disease has spread from the West to the East. About twelve years ago we first saw it in Missouri and Illinois, and though we looked carefully through orchards east of the Illinois and Mississippi Rivers, could see no trace of it. Some six years later we noted it, but not common in Ohio; more recently very badly in Michigan; two years ago badly in Maryland; and now it is not uncommon in Pennsylvania. We should be glad to know if it is much further north than this yet. The whole appearance is similar to that of the fire blight in Pear, and we have no doubt a closely allied fungus is at the bottom of the disease. The difference is that so far as we know, it seldom destroys more than two year old branches, generally only one year old, while the Pear fungus destroys branches of several years old. Besides the twig blight, the Apple has a spur blight, in which the spurs are destroyed, but this we believe to be the work of a minute insect, which deposits its eggs in the angles. We are not sure either, but sometimes the death of annual twigs in the Apple tree is caused by the boring of an insect. The branches die, and the appearances of course are just the same as in the fungus-killed cases, for a branch suddenly killed when growing looks the same, no matter what may be the destroying cause.

The matter is exciting some attention among Eastern apple orchardists, and needs more than mere cursory discussion.

American Blackberries in England.—Though "only Blackberries," our native improvements are slowly gaining ground in English favor. The *Gardener's Chronicle* says of Mr. Parker's Tooting Nursery:—"We also remarked here several varieties of the American Blackberries, which deserve much more attention than they get at present. One of the best of all is the Lawton, a most prolific bearer of large, jet black and finely-flavored berries. The black fruits of the Kittatinny are also of fine quality, and as large as Mulberries. The Dorchester variety may also be mentioned as being amongst the best."

Peaches in Texas.—A Southern paper tells us that a peach grower in Washington Co., Texas, "realized" $6,000 from twenty acres of Peaches.

The Catawissa Raspberry.—Mr. J. H. Pierce, of Dayton, Ohio, has a good word for the Catawissa Raspberry. He gathers them all Fall up to November. He thinks they will yield 1,700 quarts to the acre, and would all sell in their market, and at twenty-five cents per quart.

Rot in Grapes.—Mr. Ohmer thinks this troublesome disease is rather on the increase in Montgomery Co., Ohio.

Eating the Best.—The *Rural New Yorker* tells of a friend who "only planted one kind of Pear," because, said he, "when you have got the best, what more do you want?" He is the same old gentleman who studied a week over Thorburn's Seed Catalogue, and, making up his mind that onions were the best of all vegetables, had his garden wholly planted therewith, and had them to eat three times a day, three hundred and sixty-five days, and three hundred and sixty-six in leap year. Only for the fact that he gave this lucid reason for planting one kind, we should suppose he was the same man who claimed so much more wisdom than his fellows, because he "always went through the world with his mouth shut."

Late Grapes.—One of the most striking features in the way of fruit at South Kensington the other day was a splendid collection of Grapes from Mr. Wildsmith, gardener to Lord Eversley at Heckfield, who has excellent clusters of Alicante, perfect in berry and bloom, and Lady Downes Seedling, also well finished. Trebbiano and Burchardt's Prince were likewise represented by large bunches, as were Mrs. Pince's Black Muscat, Muscat of Alexandria, and Raisin de Calabre; and there were enormous clusters of Barbarossa (well colored), White Nice, and the best Gros Colman we have ever seen, the berries being mostly over 1 in. in diameter. Mr. Wildsmith likewise showed excellent bunches of White Tokay, each bunch being almost faultless, as were also Bowood Muscat—in all, thirteen sorts; and it would have been difficult to have found at this season finer bunches than those shown of Gros Colman, Alicante, and Barbarossa.—*Garden.*

Numerous Varieties of Apples.—Mr. Bateham says in *Country Gentleman*:—"I am often asked to give an assortment of apples for a family orchard, and on doing so, the remark is almost invariably made: 'What is the use of so many kinds?' Then comes the old complaint, that nurserymen are fond of multiplying names of fruits, so as to make a great show in their catalogues. But, as an ex-member of the profession, I assert this is mere slander; for no intelligent nurseyman wishes to grow more varieties than he believes will be useful to, or desired by his customers.

Will it Pay to Thin the Fruit?—That this severe thinning will change the bearing year there is sufficient testimony, but there is one point on which we lack evidence—will it pay? If any of our friends have tried thinning to induce annual bearing, or to reverse the bearing year on full grown trees, we ask in behalf of many inquirers that they will give their results. With young orchards, just coming into bearing, the case is very different, and whoever will take the pains and give the young trees the needed care, can make their orchard bear annually. The education of the trees must begin with their first fruiting, as the first excessive crop, though small in itself, starts the tree on the wrong track. When the trees are young, the quantity of fruit to be removed is small, and all within reach. Of course the cultivation of the soil must not be neglected, but a healthy growth maintained. Whoever will start right with his orchard, and treat it fairly, will have no reason to complain. Among the varieties of apples that are naturally annual bearers, though they may be starved into bearing biennially, or not at all, are Vandevere; Sops of Wine; Grimes' Golden, a comparatively new apple of great excellence; Milam; Minklers'; Rawles' Janet, for the south; Benoni; Hubbardston Nonsuch; Domine; Higby Sweet and English Sweet (Ramsdell's Sweet at the south). If any of our fruit growers can add to this list of annual bearers, we hope they will do so.—*American Agriculturist.*

Nut Farming in California.—Experienced horticulturists of this State say the cultivation of the almond and English walnut is extensively profitable. Some of them aver that an almond orchard fourteen years old and well cared for will average a production worth $250 per acre a year, with an increasing tendency of fifteen per cent. for seven or eight years. The cost of planting and tending for half a dozen years will hardly exceed the cost of planting an equal number of acres of wheat. The cost of gathering the crop will not exceed twenty per cent. of its gross market value. The net return of an average acre of four-year-old almond trees would at this rate be equal to the average twelve or fifteen acres of wheat. Moreover, the nut crop does not depend on the home market. It is as portable as wheat or flour, and the Eastern States would take all we could produce. The same may be said of the English walnut, save that the tree requires a longer time to mature than the almond tree. Both do well almost anywhere ten miles from the harsh sea winds and below an altitude of 2,500 feet. Los Angeles and Santa Barbara counties have achieved the best reputations in this branch of farming, so far, only because they have paid more attention to it. San Joaquin, Sacramento, Solano, Yolo, Sutter, Butte, Colusa, Tehama, and all the lower foothill region, where water for irrigation can be obtained, are as well adapted by soil and climate to the almond and walnut as Los Angeles.—*San Francisco Chronicle.*

SCRAPS AND QUERIES.

How to Make a Grape Border.—Amateur, Hazleton, Pa., says:—"Can you give some directions for making a grape border? My house will only be fifty feet long, as at present advised I shall only set out the Black Hamburg kind."

[It must be remembered that the grape-vine does not like to have its roots down in deep cold soil, but in warm ground near the surface. Under these circumstances any good garden ground made rich by stable manure, will grow good grapes. The border is best made outside and the grape-vines taken inside from the out. Most grape borders are made so that water drains into them, instead of draining out. This is not much to say, but it is about all the secret there is in making a successful vine border.—Ed. G. M.]

Persimmons.—J. H., Moundsville, W. Va., writes:—"I wish some information on sprouting Persimmon seed, and growing the seedlings; also the best mode of working the Japanese Persimmon. Will I graft, or bud, or any other mode?"

[Persimmon seed should be kept till Spring. They sprout a few weeks after sowing. We have no personal experience, but have no doubt whatever that the Japan kinds will either graft or bud freely on them.—Ed. G. M.]

The Climate and the Foreign Grape.—"Warning," Cincinnati, O., writes:—"Is it not time that some word of warning is given against the attempts being made to introduce seedling grapes that are hybrids of Vitis vinifera? We know by experience, dear bought, years ago, at least in these parts, that the foreign grape is utterly unsuited to the American climate, and any infusion of that blood to our own native kinds can only lead to degeneration, and not to improvement, however sweet the flesh of the hybrids may be."

[Our correspondent's remarks deserve great consideration. Yet he is both right and wrong. He is right when he says that experiments with the foreign grape have mostly been failures—wrong when he says, as a matter of ascertained fact, that the failure was wholly due to *climate*, for it is well-known that in cases of experiment with foreign grapes, they generally did well for a few years. Indeed, we now know that it was not always the climate, but sometimes the insect called Phylloxera, which brought about the failure, and that many undoubted native kinds failed as badly as the foreign ones. So clearly is this now made to intelligent men, that they sit and listen with wonderment to discussions about "varieties," adapted to various localities in conventions. All that is necessary to one who has kept pace with intelligence, is a look at the roots. If these are strong, active in making fibres, and quick to make new ones, when they have been injured by Phylloxera or anything else, it makes little difference to him whether it has foreign "blood" or not. He will know at once whether it is "adapted to the climate," and act accordingly.—Ed. G. M.]

Discussion on Pear Blight.—M., Bucks Co., Pa., writes:—"Will the discussion in regard to Apple and Pear blight, which took place on the excursion down the Chesapeake, appear in an early number of the *Gardener's Monthly*? I am asked very frequently in regard thereto, and I should be pleased to see that discussion in print. It is a subject that is of great interest to the fruit-growers of this section."

[We had no idea of publishing the discussion because it brought out nothing new. The cause of the fire blight in the Pear is well understood by all readers of the magazine who have followed the mycologists through our pages. If we can now come on a good preventative of this fungoid disease, we should be glad to find a place for it. —Ed. G. M.]

FORESTRY.

EDITORIAL NOTES.

Cryptomeria japonica grows larger in Japan than any other forest tree; 35 feet in circumference is not unusual.

Pine Tree Oil.—Between Bordeaux and Bayonne there is a large stretch of sandy desert, whereon there is little vegetation save here and there patches of Pine trees. From these trees, says the *Garden*, there runs a resinous matter which is collected and sold by the inhabitants of the region. The substance has recently been studied by M. Guillemare, and he has now announced to the French Academy of Science that he has produced three kinds of oil from the ma-

terial, all rich in carbon, containing respectively 80, 90 and 92 per cent. of that element. The light yielded on burning the oils is remarkable for its whiteness and steadiness, and is said to be suitable for lighthouse illumination.

We call attention to this because we believe there are many dry sections or sandy sections of our country which people think worthless, that might be profitably planted with some kinds of Pine trees. Some species send numerous roots deep down into the ground, which enables them to hold on well in the dryest seasons. Thirty years ago most of the land between London and Southampton, in England, was a barren heath, and regarded as utterly unfit for any cultural purposes. Since then it has been sown with Scotch Pine, and as the writer of this has recently seen, with great success. No doubt much of our Colorado barren lands could be successfully stocked with forests of some deep-rooting Pine trees. We should not be surprised to learn that Pinus pungens would thrive very well there, as we have seen it do well in some remarkably dry spots.

The Cork Tree in California. — Cork trees at Sonoma, from seed twenty years ago, and now twenty-five feet high, and a sheet of cork an inch and a quarter thick was taken from it last year. It will not stand the winters of Pennsylvania.

American Gum Arabic.—At a recent meeting of the Philadelphia Academy of Natural Sciences, some gum from the Prosopis glandulosa, or Mesquite, was presented by Mr. W. H. Dougherty, and seems to justify the following which we find in the *Journal of Microscopy*:

"It is said that the mesquite gum of Western Texas is almost identical with gum Arabic, and during the past year, has become an article of export, some twelve thousand pounds having been gathered in Bexar county, and as much more between that and the coast. This gum exudes from the stem and branches of the mesquite, a mimosa, several species of which grow in Texas, New Mexico and Arizona.

Growth of the Pecan-nut Hickory.— Our experience in Pennsylvania with the Pecan-nut Hickory, led us to believe that this would be one of the most rapid growing and profitable timber trees to plant, and that it would be well worth the attention of planters. For the nuts, it would be worthless north of the Potomac in the Atlantic States, but for timber it would no doubt do well even in New England. The following from a Mr. Harrison, a correspondent of the *Prairie Farmer* confirms this view:

"The Cottonwood was hardy and of rapid growth, but worthless as a timber tree and very inferior as fuel. The Locust would sprout from the root so as to become a nuisance, and the borers ruined the groves. The Gray Willow did not realize the anticipation formed of it even as a fencing material. The Soft Maple was valuable for wind-breaks and for fuel, but was not a timber tree. At this point I thought of the Pecan (Carya oliviformis), a species of Hickory, a native of the Illinois and Mississippi valleys. I satisfied myself, by experiment and investigation, of its value as a timber tree—wagon and carriage-makers, wherever they had used it, testifiying to its value, as being equal to the best of White Ash for all purposes of buggy or carriage manufacture, possessing equal durability and greater strength and elasticity. At various points on the Mississippi river, steamboat carpenters who have used it, find it valuable timber in boat building. As a fuel it has no superior. But would it grow and thrive on our prairies?

To test this, in the Fall of 1871 I dug up in the bottom land along the Illinois river a dozen or two young trees, heeled them in my garden for the Winter, and in the Spring removed them to my farm on the prairie. The Summer of 1872 was hot and dry; but all the trees grew and did finely. Next year I increased my planting, and thus far have three different settings of trees. I find it as easily transplanted as any tree I have ever handled, having never lost a tree of vigorous growth, clean and healthy. By my advice, several of my friends have procured and planted this tree, and I have five hundred more which I intend to plant the coming Spring. The Pecan tree ordinarily commences bearing about eight years of age. It bears one of the finest nuts, which sold in the Cincinnati market for the past six years, at an average price of $5 per bushel. A gentleman in the southern part of the State, who has a Pecan orchard, partly natural, which he has increased by further planting, says it is of more value to him yearly than his apple orchard. The Pecan tree is grown readily from the nut, if it is not allowed to become dry before planting.

Sicilian Sumach.—It is said that besides the Rhus coriaria, our common garden mist tree—R. cotinus—enters largely into Sicilian Sumach.

The Lacquer Tree.—Some interest was recently created in Philadelphia by a letter to the *Public Ledger*, by a Japanese gentleman who came here to the Centennial, offering to introduce the Lacquer tree and the Lacquer business to Philadelphia. It does not seem well known that our Rhus venenata is so nearly alike botanically to the Lacquer tree of Japan, and its resinous product so similar to that, that it would be worth while to experiment with that before spending

money in importing extensively the Japan form. Of this Lacquer tree in Japan, a correspondent of the *Gardener's Chronicle* says:

"Six species of Rhus have been observed in Japan, though two of them, R. succedana and R. venicifera, are only cultivated, and originally introduced from China. The cultivation of R. vernicifera and the collection of the Lacquer is one of the principal industries of Japan. Some of the villages are completely surrounded by forests of this small tree. Like R. Toxicodendron and some other species, this is venomous to some, in fact, to most persons on first touching it; but it is averred that the same person suffers only once. Contact with the plant, or the Lacquer it produces, or even inhalation of the vapor, causes the softer parts of the hands between the fingers, the tips of the ears, margins of the eyes, cheeks, scrotum, &c., to swell and inflame, and during four or five days the effects are very painful."

ARALIA PAPYRIFERA, which is now being used so freely in our country for ornamental purposes, is the tree from which in the island of Formosa only, the Chinese make a choice kind of paper. The most common tree for paper-making is the Paper Mulberry, so common in many Southern towns, Nashville especially, as a shade tree. All American trees have been apparently raised from one separate tree, as they are all male plants. In France the writer of this saw female trees covered with immature fruit, and thousands of seedlings are annually raised in the nurseries.

A VALUABLE OAK.—The Monarch Oak, the largest in Herefordshire, was sold the other day by auction. The reason for cutting down this king of the forest was because it has been three times struck by lightning within the last seven years, but though these repeated attacks have shattered a great part of its top, it still contains upwards of 1,000 cubic feet of timber, and its girth is 66 feet. With this tree two smaller Oaks were included (one of them a dead tree), and the three together realized the reserve price of £200.

NATURAL HISTORY AND SCIENCE.

COMMUNICATIONS.

RESTORING DEAD SEEDS.

BY SEEDSMAN.

What is dead is dead, and cannot be restored by any human power. Many seeds fail to grow that are really good. The shell or outer covering of the seed becomes so hard, that ordinary influences fail to break it. In the meantime the seed itself rots, by the very influence that should make it grow. Whereas, if artificial influence can be brought to bear to break the shell, in time to allow the germ to shoot forth, the seed will grow.

It sometimes happens with new seeds in ripening, the shell may become so hard as to prevent growth without artificial aid. In the case of Osage Orange seed, it is questionable, if under favorable circumstances, they ever lose their vitality. Yet it is frequently necessary to soak the seed in warm water, or mix it with sand saturated with warm water, to make it grow. To seedsmen there is nothing new developed by the experiments of Professor Lazenby.

NOTES SUGGESTED BY THE "TUMBLE WEED."

BY MR. VLADIMER DE NIEDMAN, 53d AND DARBY ROAD, PHILADELPHIA.

Having noticed several queries about "Tumble Weed" in the *Monthly*, and taking the queries as a common rule for a sign of people interested in the subject, I offer a few words in general about plants of the same genus. It may be of interest to some.

Tumble Weed, as already rightly remarked by a California lady, is a Chenopodeæ, where nearly all other "Tumble Weeds," and the Cycloloma platyphylla and Amarantus albus belong also. The representatives of this large family, shrubby or herbaceous, are, as a rule, only of the intermediate zone of the northern hemisphere. In tropical countries they are replaced by the Amaranthaceæ, of which the Amarantus caudatus, Celosia cristata (the so-called Cockscomb), Gomphrena globosa, and many others, are found in our gardens as ornamental plants. The Chenopodeæ, preferring a ground rich in salt, —a nutritious substance,—to any other, will be found growing chiefly in the Western prairies,

and a good many in the Utah Territory. In Europe, at the south-western salt region in Russia; and also in Central Asia some of them grow along the sea-shores, as Salsala Kali, Salicornia herbacea, and Halogeton sativus, and contain a good deal of soda; the latter is grown in Spain in quantities for this purpose. Also a few herbaceous ones, mostly annuals, are pululating near by habitated places, along the roads, on rubbish, half rotten humus, and vital remnants; in fact always there, where the ground contains some sal-ammoniac or azotic particles. All parts of the plants are of an offensive smell, and often used in medicines, as Chenopodium olidum and Chenop. atriplex.

There are also among the representatives of this family some positively useful to the human race, and they are cultivated with much care, skill, and on a large scale. As for instance: Out of the Cycloloma, the Beta vulgaris, commonly known as sugar beet, of which principally the white and yellow varieties are extensively cultivated in Southern Russia for extraction of the finest quality of sugar. (The process of production of the beet-sugar was discovered in 1747 by the German chemist Markgraff, but the extensive production of it commenced only since 1872.)

Spinacia oleracea, our common Spinage, was at first introduced by the Arabs in Spain; and now it is nearly in every vegetable garden. In France the Spinage is replaced by Atriplex hortensis, and in England by the Chenopodium bonus Henricus, both of them serving well the purpose. In Peru the Chenopodium quinoa is cultivated as a grain, and often, even to the height of 13,000′, are immense fields sown of it. The seed is very oily, contains a considerable quantity of starch, and is relishable and nourishing. The green parts of the plant are also used as a vegetable.

EDITORIAL NOTES.

Our "Finger Grass" in Europe.—This—Panicum digitaria—and which is well known to American lawns and gardens from its amazing and coarse growth in the Fall of the year, was noticed in France about 1826, and has since spread through the country like wildfire. Serves them right. They should spread information among cultivators as to what are likely to be noxious, so that people could recognize and destroy them on their first appearance. They have done this with the Colorado potato beetle, simply because their entomologists bring their studies home practically to the people. Colorado potato bugs are not near the evil that noxious weeds are.

Aiding Pollen in Fertilization.—In regard to a matter which some months ago excited some attention from correspondents, we give the following from the *Gardener's Chronicle:*

"To those who devote attention to hybridization we suggest the possibility, that if mucus from the stigma of the intended pollen parent is applied to the stigmas of the plant desired to be fertilized, many difficult crosses might be effected. This, of course, depends on the supposition that if the pollen tubes are emitted they may penetrate the style, and that the foreign mucus is not always congenial for the commencement of growth. Some hybridists may have experimented on this point, and, if so, it would be interesting to know with what result. This idea has frequently presented itself to our mind, and we are induced to express it from having recently read an observation by Mr. James O'Brien in the *Garden* of August 19th, that to get pollen tubes for the microscope it is only necessary to place a sufficient quantity of mucus on the slide and apply the pollen. He says that one or two drops of nectar are taken from Lilium speciosum or L. auratum, and not more than a dozen grains of pollen applied, that in half an hour the tubes will begin to appear and grow for from one to two hours, when they will resemble long snakes. The nectar will soon harden, and being perfectly transparent, a permanent object is secured by laying on a thin glass and pressing out air bubbles before hardening takes place."

About Spruces and Firs.—A California botanist, who accompanied Professors Hooker and Gray through parts of their excursions in California, and the ring of whose pen has a strong *Lemmonian* sound, in writing of some of their views and experiences of things, gives great credit to Dr. Engelmann for insisting that the spruces and firs shall be kept as botanically distinct as they are practically, and should have their right names. Those which have cones erect, and which crumble in the hand when mature, like our common Balsam Fir, are the *Abies*—those which have pendant, permanent cones are *Picea*. Of late years the English botanists have called them all Abies, and when they did divide them, called the Firs *Picea*, and the Spruces *Abies*. Americans have hesitated to insist on the correct names, believing it would be proper for Europeans who made the error to correct it. But as no effort of this kind is made, we propose to fol-

low the right course as indicated by Engelmann, hereafter.

A New Enemy to the Pine Tree.—The importance of the subject leads us to give entire the following paper read by Professor Aug. T. Grote, before the recent meeting of the American Association:

"In the months of June and July the Red Pine (Pinus resinosa), and the White Pine (Pinus strobus), show by the exuding pitch that they are suffering from the attacks of an insect. The wounds occur on the main stem below the insertion of the main branch. On cutting into the bark the injury is found to be caused by a small larva which, when full grown, measures sixteen to eighteen millimeters. The head is shining chestnut brown with black mandibles. The body is livid or blackish green, naked, with series of black dots, each dot giving rise to a single rather stout bristle. The protharasic is blackish. The larva has three pair of thorasic, or true jointed feet, and four abdominal or false feet, besides anal elaspers. This larva, eating on the inner side of the bark, and making furrows in the wood, causes the bleeding which, when the depletion is excessive or continuous, and especially in the case of young trees, has proved fatal. In July the worm spins a whitish thin paper cocoon in the mass of exuding pitch, which seems to act as a protection to both larva and chrysalis. The chrysalis contained in the cocoon is cylindrical, smooth, narrow, blackish brown about 16 millimeters in length. The head is pointed, there being a pronounced clypeal protuberance, the segments are unarmed, and the anal plate is provided with a row of four spines, and two more slender, on either side of the mesial line, below the first. It gives the moth in ten to fourteen days. The perfect insect expands on an average 30 millimetres. An examination of the veins of the wing shows that vein 7 of the primaries is wanting, while vein 6 is simple. On the hind wings the cell is closed or very nearly so. It belongs thus to the Phycidæ, a sub-family of the Pyraledæ. The male antennæ are bent a little at the base, the joints inconspicuous; the maxillary pulpi in the same sex are not brush-like, and the hind wings are 8 and not 7 veined. We may refer the moth then to the genus Nephopterix. Veins 3, 4 and 5 spring nearly together from the outer extremity of the cell of the hind wings (though 5 seems to be nearly independent while running close to 4); vein 2 is not far removed from 3. On the primaries, veins 4 and 5 spring from a common stalk, so that we must refer the moth to the sub genus Diosyctria of Zeller. In color the moth is blackish gray, shaded with reddish on the basal and terminal fields of the forewings. There are patches or lines of raised scales on the basal field and on the anterior and darker portion of the median space. The medium lines are prominent, consisting of double black lines enclosing pale bands. The inner line at basal third is perpendicular, W shaped, or dentate. The outer line at apical fourth is once more strongly indented below costa. The black component lines do not seem to be more distinct on one side than on the other of the pale included bands or spaces. The median field is blackish, becoming pale towards the outer line; it shows a pale, sometimes whitish, cellular spot, surmounted with raised scales. It can be seen that these raised scales (easily lost in setting the insect) accompany the median lines as well as forming the discal mark and the linear patch on the basal field. The terminal edge of the wing is again pale or ruddy before the terminal black line. The fringes are blackish. The hind wings are pale, yellowish white, shaded with fuscous on cortal region and more or less terminally before the blackish terminal line; the fringes are dusky. Beneath the forewings are blackish marked with pale on corta; hind wings as on upper surface. Body blackish gray, with often a reddish cast on the thorax above and on the vertex. The eyes are naked, the labrial pulpi long ascending, with moderate terminal joint. Tongue rather long. The gray abdomen is annulated with dirty white, the legs are pale dotted. The species differs from the European alietella by raised scale tufts on the wings, and Prof. P. C. Zeller, who has kindly compared examples for me, declares it to be quite distinct from any European species. The pupa seems to differ from that of alietella by the clypeal prominence which appears entirely absent in the European species judging from Ratzburg's excellent figures. The larva is found to attack also various imported conifers; for this reason I suppose it might be an imported parasite. It has been noticed on the Scotch, Austrian and Russian pine, and it will be found, I fear, a grave enemy to the cultivation of this genus of plants.

Since the insect is not noticed yet in any scientific publication, I propose to name it Nephopterix (Diosyctria) Zimmermani, after Charles D. Zimmerman, of Buffalo, who has made many excellent observations on our noxious insects, and to whom I am greatly indebted for help in getting all the facts with relation to the present species. He has kindly spent much time in climbing large trees and cutting out pupæ and larvæ, and rearing the perfect insect.

The larva of ailetella is described by Batzburg as living in the cones chiefly of various species of Pinus. Nevertheless, he speaks of one instance in which it was found under similar circumstances to those which are usual with Zimmermani, which latter I have not yet noticed attacking the fruit. The European species is said to winter in the pupæ state. In the vicinity of Buffalo our species seems to be single brooded. I have not yet ascertained the winter state. Batzburg recommends cutting off infected branches, but, especially on small trees I find the larva of Zimmermani usually infesting the main stem at the insertion of the branches. From the fact that the pitch of the trees offers a protection, I do not think that any washes would reach the insect. The knife, then, seems the only remedy.

Our species has a natural enemy in a small hymenopterous parasite with which I have found certain of the chrysalids to be filled."

Respiration and Assimilation in Plants.—Corenwinder has recently published an elaborate paper detailing what appears to have been long and careful experiments on the respiration of plants. Protoplasm (the matter out of which cells are made) and chlorophyl (the green coloring matter in the cell), he finds, have distinct powers. Protoplasm absorbs oxygen and exhales carbonic acid, just as animals do, day and night. In the early stage of plant growth, before much green coloring matter is formed, the plant does little else than exhale. But as soon as chlorophyl is formed this throws off oxygen and retains the carbon, out of which structure and material for future use is formed. As already known, it can only do this under light. This difference is important, and, while it explains much that has been an enigma, may lead to practical results. Potatoes and other vegetables, sprouting in dark cellars, grow very well, as such a blanched growth grows; but the growth must die, because there is no chlorophyl to manufacture future material. Then we learn why cellars with vegetable growths in them are unhealthy. Plants, as we generally see them, purify the atmosphere. They decompose carbonic acid, appropriating the carbon and expiring the oxygen; but in these cases of blanched vegetation the case is reversed and the oxygen is the element absorbed. There are few papers appearing in scientific journals from which we can learn so much as from this of Corenwinder's.—*Independent.*

Artificial Ivory.—The new process for the manufacture of this material have just been brought out in France. The first consists in dissolving two parts of pure India rubber in thirty-six parts of chloroform, and saturating the solution with pure ammoniacal gas. The chloroform is then distilled at a temperature of 165 degrees Fah., and the residue, mixed with phosphate of lime or carbonate of zinc, is pressed into moulds and dried. When phosphate of lime is used, the product is said to possess in a remarkable degree the peculiar composition of natural ivory. The second process involves the use of paper mache and gelatine combined. Billiard balls of this substance cost about one-third of the price of genuine ivory balls, and are claimed to be quite as hard and elastic as the latter. They may be thrown from high elevations upon pavement without injury, and will withstand heavy blows with the hammer. The composition is known as Paris marble, and may be used for raised ornamentation on ceilings or prepared so as to imitate fine varieties of marble.—*Gardener's Record.*

SCRAPS AND QUERIES.

Burying Roots.—E. K., Brattleboro, Vt., says:—"Last Spring I had my grounds graded, and about two feet of soil was heaped around a fine larch tree. It has so far not shown any sign of hurt. Fearing, nevertheless, that in might get injured, I beg to ask your kind advice. Taking the soil away to any extent round it, would make a basin into which the water would run from all sides, the tree standing unfortunately in the centre, and is the lowest spot of the ground."

[Very often trees die after being buried up; but then again they sometimes live. The chances are that they will die. They want air—and it may be that in some of the fortunate cases, some of the roots find the way to get air in spite of the covering. In some cases a small walled up well-like circle is made around the trunk of the tree, through which water goes and air follows. This often saves the tree. It is not the filling up of the stem that causes the tree to die, but the suffocation of the fibrous roots.—Ed. G. M.]

Freezing of the Sap of Plants.—A Boston correspondent says:—"In the July number of the *Gardener's Monthly*, page 217, you say 'the sap does not freeze in plants in the winter time,' which seems to me to be a contradiction of what you say upon this matter in the June number of the *Gardener's Monthly*, page 185, where you say: 'If it has not been long or severely frozen,' referring to a plant, 'it may be recovered by immersion in cold water.' If I am in error in regard to this matter will you be so good as to point it out to me as briefly as you please, and at the same time state what it is that injures plants in the winter season, if it is not the freezing and thawing of the sap."

[Our correspondent has the idea exactly in one way by putting it conversely, "Freezing and thawing of the sap in Winter injures plants." Therefore we say when they are not injured the sap has not been frozen.

But our correspondent must not forget that plants may die in the Winter from either of two

causes: 1st, They may die from rupture of the cells when they expand from the freezing; or, 2d, they may die from the evaporation of their juices, as they often will in severe weather. *Technically* no distinction is made. In both cases it is customary to say the plant was killed by frost.

When we say "If the plant has not been long or severely frozen," syringing with water will bring it to—we are referring to plants under the second condition. When a plant in a greenhouse is first touched with "frost" it wilts; its juices evaporate rapidly, and this is why it wilts. After a time the sap vessels will freeze, and burst: If we help the plant to regain its losses before the interior freezes, that is a gain; but if the juices in the cells once freeze, the geranium, or whatever it be, is gone surely.—Ed. G. M.]

Wearing Out of Varieties.— R. J. S., Philadelphia, says:—"As I see the subject of wearing out of varieties continues to receive attention, is it not a proof in the common Butter Pear, which, during recent years has degenerated surely. How do you explain this?"

[What does our correspondent mean by 'recent years?" This pear is no worse about Philadelphia than it was a hundred years ago, as we have indisputable evidence. It is no worse now than it was then; it has not "degenerated" in a hundred years. The Butter Pear is just the same as it was a hundred years ago. Therefore, we say it is no nearer "wearing out" than it was then. —Ed. G. M.]

Different Degrees of Thickness in the Annual Wood Circles of Trees.—J. S., Mt. Carmel, Ill., writes:—"In connection with the subject on 'Excrescences and Eccentric Wood Growth,' it may be interesting to state a fact that I have often noticed, viz.: That the annular rings of many trees that I have counted, show a very irregular growth. The rings representing eighty to one hundred years back, are crowded into much less space than those found before or since. I know of no way of accounting for this, except it be that the corresponding years were very dry."

Literature, Travels & Personal Notes.

EDITORIAL NOTES.

European Notes by the Editor, No. 4.—To describe in detail all the novel points of our little trip, would fill a volume. I shall have to omit much, and simply take special topics, nurseries, large estates, public grounds, markets, antiquities, and so forth, as they impressed themselves on my memory, "jumping" about from place to place, in order to select our types. As we left off in our last with a typical Rose nursery, we may as well continue the subject of nurseries in this present note.

For a nursery where fine specimen trees and shrubs are the leading features, I saw no one that better pleased me than that of Jas. Mitchell & Son, of Pilltown, near Uckfield, in Sussex. The nursery does not count its acres by the scores, but the number of beautiful specimens was very great. A smooth gravel road, with neat box-edgings, extends around the grounds, and the borders on both sides are filled with specimens of trees and shrubs of every variety, set out with no particular regard to kinds, but just as they would look best. These are all cared for and made to look nice. The prices paid for these pretty specimens would "scare" an American accustomed to look at $5 for a "tree," as a "big thing," so I will say nothing about that here. Some of these specimens I had never seen so large and fine. Imagine golden Arborvitæs perfect globes of six feet over! Taxus adpressa globes of eight feet over! what would its lover, Hoopes of West Chester, say to a few score like that? Berberis Darwini about four by four feet. Libocedrus decurrens—"beg pardon, Thuja gigantea" —twenty feet, and as regularly conical as a child's green moss tree! Our Shepherdia Canadensis, beautiful globes of six feet over, and hosts of similar wonderfully grown things. As soon as one thing is sold another takes its place, so that there is a constant succession of transplanted

stock almost sure to grow, though of any size. Of course I ask myself why cannot we have such things? Why cannot a man or woman in our country plant a place at once like a perfect picture, instead of waiting until the day they die to know the trees have grown, and these only to be cut away by the next inheritor, who sees only "valuable building lots" at hand? Only because nurserymen here cannot afford to treat the plants suitably at ruling prices. A long avenue of Araucaria imbricata here is worth any one's going to see. One which I measured was 70 feet round in the spread of its branches, and eight feet and a half in the circumference of its beautiful straight trunk. If my memory is true, it is but about 13 years old. The large pine-apple-like cones on the bearing trees, add much to their striking effect.

I was anxious to see a trade nursery. Be it known that London is in a measure all England. If a person in any part of the little island wants anything whatever, the first thought is to "send to London for it." And so orders for trees and flowers of any kind whatever, go to London. Now one cannot have nurseries or greenhouses to any great extent in a crowded place like that, in which there are more people than in all Pennsylvania! So those who sell have persons in the suburbs who supply their needs on short notice. These places are called nurseries which "grow stock for the London trade." One of the best known of these is, perhaps, Cutbush's of Barnet. The great especial feature is the Holly, of which an enormous quantity in endless variety are grown. Of course I admired their beauty in a general way, but as we cannot have these beautiful things in our country, I showed I fear, little interest in the "Microphylla grandens," the "Purpurea feroxes" and the "Angulorum foliolorums" on which my guide so fondly dwelt; and it was not till I found myself among the pretty Heaths, Epacrises, Acacias and other beauties of New Holland, of which hundreds of thousands are here raised and sold, that I seemed to regain a reputation as a person of ordinary intelligence. Most of the things grown of this character are still the Boronias, Dracophyllums, and similar old stagers, which were popular when us gray beards were 'prentice boys—Genitylis tulipifera being one of the few favorites grown in immense quantity, that were not much about in the olden time. To grow grapes in pots—hot-house grapes as we may say—for the London trade, is also a specialty here. They know how to grow them—ten feet of good strong wood in a season. This is the way all do in this business. They grow only a few articles that they have learned to grow well.

We will now miss a few days' work, and take an omnibus ride from Charing Cross to what we understood everybody to say the Bulingate, which translated, means "Bull and Gate." It must, no doubt, have been a fearful gate in old Bovine times; but it has probably been all carried off by the relic hunters, for when the gentlemanly guard informed us that we were at "the gate," I failed to find a solitary splinter even of its post. But I took a "tramway" from there, and about noon came on the famous "show" nursery of the Williams' at Upper Holloway. The main feature is stove and greenhouse plants, and the aim is not only to have everything new to be found in the trade, but everything new and good before any one else, if possible. When Mr. Williams, Sen., began, he found little trade, because people did not know what good things were, so he determined to grow them to perfection, and exhibit them through the world. His beautiful collection at our Centennial was a great feat. He could not, of course, trust his best specimens so far, but it was wonderful that he did so well as he did. His son had just returned from Portugal as I was there, with the grand medal of honor for his exhibit at their great show at Oporto. Young Mr. Williams left a good opinion of his gentlemanly character and business intelligence behind him in America, and it was a pleasure to me to find him everywhere highly spoken of in his own country. Few people who are familiar only with plants as seen at our American exhibitions, can have any idea of plants as they are when grown as Mr. Williams grows them. Azaleas four to six feet high, and so perfect that not a leaf is misplaced; but in these we are not so far behind, as a visit to Mr. Sargent's in Brookline in March, at least will show. Croton Johannis six feet high; Ixoras with flower heads six inches over; Adiantum Farleyense, solid globes, three feet through; Dracophyllum gracile with two hundred heads of flowers; Ericas about six feet high by four wide, with thousands of flowers; A Dracæna rubra, with fifty perfect leaves; Statice Holfordi four feet by two; an orchid Sobralia macrantha, with forty open flowers; Cypripedium barbatum, in an eighteen-inch pan, with thirty-five flowers; a Dicksonia sixteen feet high and four feet round. These are but faint samples of hundreds of other

things in the *forty beautiful* greenhouses which comprise the establishment. Mr. Williams thinks a good share of his success has been the persistent exhibiting of good specimens, by which people could see for themselves how fine plants might be made by growth and skill.

Hardy herbaceous plants are becoming extensively patronized in England, and there are now numerous nurseries engaged in growing these alone. One of the best of these is, perhaps, Ware's of Tottenham. I do not know of anything which gave me so much pleasure as the day I spent here. A single plant, as we see them in our gardens, is pretty enough, many would say; but here with hundreds of a kind in beds, the effect is beautiful in the extreme. For Alpine plants, rocks are arranged on elevations, and swamp plants are grown in kegs of water, sunk in the ground. The water is very slow in evaporating under these circumstances, and is just the thing for these plants. For Cypripediums and plants that need shelter from wind and sun, hedges of Privet and Arborvitæ are made; and for bog plants peat beds are formed. With this little care I had the satisfaction of seeing many of our own native plants, far more beautiful than I had ever seen them at home. At Parker's at Tooting, and Barr & Sugdens at Fulham, herbaceous plants are specialties—the last chiefly in bulbs—the former especially rich in aquatics, from having a stream by an artesian well.

In the matter of new and rare kinds, as a matter of course, the inquirer takes his steps to Chelsea, where Bull and Vietch, neighbors, have wonderful establishments, and whose proprietors ransack the whole world for whatever may interest the lovers of trees and plants. A day at Mr. Bull's was entirely too short to take in all the treasures of this immense establishment. The entrance is through a large palm and tree fern house, which is shaded by training grape-vines under the glass. Orchids are grown in immense quantities, and some of the more common kinds are now thought cheap at from one to three dollars each—small plants of course. The rarer ones, however, bring high prices. Odontoglossum vexillarium brings about $15 each. Mr. Bull states that it cost him over $15,000 to get his stock of this plant. Some of these Odontoglossums bring $50 each, with the demand often beyond the supply. In Dracænas and leaf plants, generally, there were a great number of good things. Dracæna Goldiana particularly attracted us. So many new Dracænas are hardly different from the old ones; but the white feathery painting of this made it very distinct, and as beautiful as it was novel. Mr. B. was paying great attention to economic plants, and the new Cotton, new Liberian Coffee, and a species of Eucalyptus, with leaves as sweet as the Lemon Verbena, had a good share of his attention. New Arums, new Palms, new Ferns, new Lilies, new Zamias, new Orchids, new—— well, one would hardly think there were so many new things in the world to find, and there would not be, but for the wonderful enterprise of men like these. A pretty improvement is in the old Pelargoniums. They are crumpled and increased in petals, and yet have a beautiful regularity amidst all their seeming confusion. Some of the earlier kinds having been named after Royal personages, the whole race has been called "Regal Pelargoniums."

At Veitch's the entrance, as at Bull's, is particularly imposing; when you get through to the houses, you are not apt to feel the establishment particularly impressive; but as you go from house to house—there are *one hundred and four of them*—and you proceed to the rarer and more valuable plants, the riches and vastness of the collection are almost overwhelming. Great attention was being paid to getting new races of plants by hybridization. Mr. Domine, who first made hybrid Orchids an actual and a profitable fact, is with them, living in a house on the grounds most beautifully covered with Ampelopsis Veitchii. They have improved the tuberous rooted Begonias to a wonderful extent, a fact of much interest to Americans, in whose land they will make admirable bedding plants. There is in hand a new race of hybrid Rhododendrons. Fuchsias and Geraniums were also under the improver's hand, and the Gloxinia had been put under training for still more beautiful varieties than it has yet given us. Mr. Veitch told me the Gloxinia had even been made to cross with the Foxglove, but whether he said he had this in hand, or it was only talked of in England, I do not now quite remember. There is a beautiful Camellia house here, one hundred feet long, the plants growing in the open ground; and an interesting point to me was the shading effected by coarse netting.

Wonderful attention is bestowed on the Orchid family, no less than twenty-four houses or one-fourth the whole establishments being devoted to them. The Hydrangea was being improved, the aim being to get a fixed rosy red color, and

considerable success had attended their efforts. New Egyptian Cotton, new Cinnamon from Japan, that would be half hardy if not more than half, new Nepentheses or Bornean pitcher plants, and the Darlington pitcher plants from California; these will give an idea of the scope of this immense establishment.

It was my aim to take this day also to examine a type of a hardy tree nursery, but the day is gone at this immense place, and I must leave this for another one, and take the omnibus back to London.

"You're a furriner, I see," said the kind-hearted guard, "and I suppose like to see all the interesting things?" It always surprised me how a man in his own born country should be taken for a "furriner," but I admitted that it was just so. "Well," said he, "*there* is a curiosity you will hardly meet with in any part of the world. A church wedged in between two of the gayest kind of taverns." "But," said I, "tell us about these gardens, whose they are, and anything you know about them." And it is wonderful, as Sir Walter Scott once said, how much there often is under a tarpaulin hat or fustian jacket.

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Arboretum Segrezianum.—An enumeration of the trees and shrubs cultivated at Segrez, Seine et vise, by Alphonsé Lavallee.—Mr. Lavallee is a wealthy young gentleman, President of the leading Horticultural Society of France, and who takes a great interest in everything that pertains to Horticulture, and especially the Arboricultural branch; and he has collected together over four thousand species or marked varieties of ligneous plants, and which form, perhaps, the finest arboretum in the world. There is a collection of over one thousand in Germantown, out of which seven hundred and fifty were exhibited at the Centennial, and this is thought to be pretty full, and one may judge from this how superior is this one of Monsieur Lavallee. The great value of this "enumeration" is in the care with which the correct name is raked out from the mass of synonyms, and the authorities given for the names. If they have been figured, references are made, and the native country of each is appended. It is a work that will be of great service to any one interested in tree culture.

It is possible that a little more acquaintance with American literature would have prevented some errors. Our old friend, the Heath-leaved Arborvitæ, and which every American who has ever watched the growth of a lot of seedlings, knows is but an Arborvitæ that has retained through life its juvenescent character, is now carried out of "Retinospora," where Carriere placed it, into Cupressus, and actually reduced to the same thing as "C. (Ret.) squarrosa." And our other friend, "Tom Thumb," which in our country grows out of its juvenescence after a half dozen years or so, and assumes its hitherto delayed full Arborvitæ character, is also made a Cupressus — C. squarrosa Elwangeriana. The further error is made of giving Mr. Barry as the author of the name "Retinospora Elwangeriana," which we all know he is not. The way in which foreign botanists worry and fuss over these simple things, is very amusing to Americans.

The work can be had of Bailliere et Fils, Paris or London.

Corrections.—A friend well-informed on California botany, kindly suggests that Mrs. Briggs' "Butterfly Tulip" is a Calochortus, and that the "White Tulip" is a Cyclobothra. "Poweridianum" is of course a misprint for pomeridianum. So in Mr. Falconer's article, p. 324, speaking of the hardihood of Evening Primroses, it should be 4°, not 40° below zero. And in addition we have the following, although the printer insists that in these cases the fault is in the "copy," and is none of his.

"New London, Conn., November 6th, 1877.

"Mr. Editor:—You make me say in November number of the *Monthly*, p. 332, that the latitude of New London is 47° 21′ N. What I wrote was 41° 21′ N. I would hardly warrant the English Walnut to bear fruit at Quebec, which is about 47° N. Yours truly,

"Robert Coit."

"Rochester, N. Y.

"Mr. Editor:—In printing my last communication, p. 343, the substitution of the words 'if one' for 'if any,' you do such extreme violence to the sense that I am tempted to call attention to the mistake. Eugene Glen."

Guano.—It takes a long while for the world to find out the value of things. Guano and its good qualities is mentioned by a Spaniard, Alonsa Barba de Potosi, in 1640, translated into English by the Earl of Sandwich in 1670.

The Soldiers' Home at Dayton, Ohio.—These grounds, under the management of Mr. Beck, are said to be models of good taste, and they have

had a marked effect on the garden culture of the Daytonians.

Business Enterprise.—It was remarkable that in the same number that we noticed the beautiful new Violet, Belle de Chatenay, and remarked that it was probably not yet in our country, it should be advertised in that very number by H. A. Dreer. We herewith give an illustration of it.



DOUBLE WHITE VIOLET, "BELLE DE CHATENAY."

Thomas S. Kennedy, of Louisville.—A Louisville paper before us speaks complimentarily of the appointment of this gentleman as one of the Vice Presidents of the American Pomological Society. It is always a sign of worth when one's neighbors praise.

SCRAPS AND QUERIES.

Ephemeron Flower.—"Classic" asks us if the plant known as "Ephemeron flower" is in cultivation in this country? As we have repeatedly said it is little use in bothering with the "popular" names of plants, unless like Mignonette and Pansy they have become "household words." There are at least half a dozen kinds of things which have had the name of "Ephemeron" given to it, of which the Digitalis purpurea and Tradescantia Virginica are perhaps the best known by it Though we cannot decide which our correspondent means (if either), we may say that both are "cultivated in this country," where, if they must have "popular names," they are tolerably well known as "Spiderwort" and "Foxglove." The former he can find wild in the meadows from near which he hails (St. Paul).

Napoleon's Willow. — F., Boston, Mass., writes:—"Excuse a question which may seem a simple one to you, but happened to arise, and prove an unsettled dispute in a little circle. It is, is the common Weeping Willow of our gardens the same as the one growing over Napoleon's tomb at St. Helena?"

[It is the same, and tradition says all our Willows sprung from a cutting of that one, having been brought over by Captain Jacob Smith of Rhode Island. Perhaps our old correspondent, A. Smith of Providence, (if still living, for we have not heard of him for some years,) could give us the exact date of the introduction, as we have an impression Capt. Smith was one of his ancestors. —Ed. G. M.]

Sending Stamps for Answers.—A few people —we are glad to say not many—forget to send stamps when a reply is required on their own business. There are others who are over thoughtful, and who send cards or envelopes already stamped and addressed. A man with a score or two of letters coming to his table, does not an-

swer each one as he reads it, leaving all the rest unopened till he finishes the answer to that one, but he opens all first. When he comes to the letter that had a stamped and directed envelope, it is a rare chance if among so many he remembers about it—at least we cannot. The scores of addressed stamped envelopes and cards lying about on our table is a nuisance. We shall be perfectly satisfied with the "stamp enclosed." Some think that as an addressed card cannot be used for anything else, it forces an answer they would not otherwise receive, but this is a mistake—in our case at least.

Rules for Judges.—An Ohio correspondent writes:—"In our State Fair and some of the Horticultural Premium Catalogues, under the class of greenhouse plants, is this rule, 'All plants must be grown in the pots in which they are exhibited.' Is there any rule by which to decide how long the plant must have been in the pot, to come under this rule, if the plant is dug up out of the ground and potted?"

[We must never forget that language is used to express one's meaning, and in any doubtful case, what ideas it was the evident intention to express, should have the benefit of any doubt that may arise. In the present case it was clearly the intention to encourage the pot-culture of flowers, and it would be no such encouragement if plants could be first grown in the ground, and then just lifted and put into a pot for the purpose of exhibiting them. But in the present case there is not even this doubt, for the language is not "growing in a pot," but *grown* in a pot; and we should say that if the best part of the plant or more than one-half of it, had been grown in a pot, and only the minor part of it originally in the ground, it ought not to be disqualified.—Ed. G. M.]

Horticultural Societies.

The Pennsylvania Fruit Growers' Society.—We should gladly notice the proposed meetings of all our Horticultural Societies, if they came to us in time; but very few notes come to hand until a few days before the time. Just as we go to press we have the following from one of the officers of the Pennsylvania Society:—"The next meeting of the Pennsylvania Fruit Growers' Society is to be held in Williamsport, on the third Wednesday of January next, and that the officers are using every endeavor to make it an unusually interesting time. They are now engaged in collating matter for the new report, which will contain, among other good features, some superb full-page illustrations of our little known seedling Pennsylvania fruits. The several committees are at work, and appear desirous of keeping up the reputation of the Society, as a means of diffusing information upon general Horticulture throughout the State. Delegates and visitors from other States will be heartily welcomed."

Organizations for Town Embellishments.—Mr. Steele, of Dayton, Ohio, recently read before the Montgomery Co. (O.) Horticultural Society, a very interesting paper on this subject. He quotes the following from the pen of Geo. E. Waring, in *Scribner's Monthly*:—

"The Laurel Hill Association takes its name from a wooded knoll in the center of the village, which had been dedicated to public use. The first object of the association was to convert this knoll into a village park. Then they took in hand the village burial ground, which was put in proper condition and suitably surrounded with hedge and railing. Then the broad village street was properly graded and drained and agreeable walks were made at its sides. Incidental to this the people living along both sides of the streets were encouraged to do what they could to give it an appropriate setting by putting their own premises into tasteful condition and maintaining them so. The organization worked well and accomplished good results. The Rev. N. P. Eggleston, formerly of Stockbridge, in a paper on village improvements, written for the New York *Tribune*, thus describes the collateral work and influences of the Laurel Hill Association:

"Next followed the planting of trees by the roadside, wherever trees were lacking. The children, sometimes disposed in their thoughtlessness to treat young trees too rudely, were brought in as helpers of the association, while at the same time put under a beneficial culture themselves. Anybody who would undertake to watch and care for a particular tree for two years was re-

warded by having the tree called by his name. Other children were paid for all the loose papers and other unsightly things which they would pick up and remove from the street. Gradually the work of the association extended. It soon took in hand the streets connected with the main street. Year by year it pushed out walks from the center of the village towards its outer borders. Year by year it extended its line of trees in the same manner; and year by year there has been a marked improvement in the aspect of the village. Little by little, and in many nameless ways, the houses and barns, the door—yards and farms, have come to wear a look of neatness and intelligent, tasteful care makes the Stockbridge of to-day quite different from the Stockbridge of twenty years ago. Travelers passing through it are apt to speak of it with admiration as a finished place; and, compared with most of our New England villages, it has such a look; but the Laurel Hill Association does not consider its home finished nor its own work completed. Still the work goes on. Committees are even now conning plans for further improvements. The association fosters libraries, reading rooms and other places of resort, where innocent and healthful games, music and conversation, will tend to promote the social feeling and lessen vice by removing some of its causes."

ADDRESS OF MARSHALL P. WILDER.

(Continued from page 320.)

THE EXTENSION OF FRUIT CULTURE, AND THE IMMENSE CROPS OF OUR COUNTRY.

As the source of light and heat travels from the East, completing its daily circuit on our Western shore, there to rejoice in all his strength, so fruit culture has crossed our continent to the Pacific slope, there to produce almost all the fruits of the habitable globe, and finally to permeate, enrich and adorn our whole land.

At the time of the organization of our Society, the cultivation of fruits for the market, or for exportation, was limited to a few of the older States. In Mr. Coxe's opinion the fine apple growing section was bounded by the Mohawk river in the North, and the James river in the South. Fruit growing in this section was confined principally to apples and peaches; but very few of the latter found their way to the markets of the North, while strawberries and other small fruits were scarcely to be seen, except in the locality where they were raised.

But now, almost every steamer from New York for Liverpool or London, in the Fall and Winter months takes apples varying from five hundred to three thousand barrels. Shipments have been made from other ports, and as late as last May there were fifteen hundred barrels sent to England from Philadelphia. In December last, ninety thousand barrels of American apples were landed at Liverpool. Very little difficulty is experienced in the winter months, but arrangements have been made to ship in warm weather by vessels with refrigerator compartments.

As the refrigerating process becomes more and more perfect it will aid largely the exportation, not only of apples, but of more delicate fruits. Pears, peaches and grapes have been sent to England in good order, and it is confidently expected that American peaches will soon be well known in the markets of England.

But what shall we say of Canada, Iowa, Wisconsin, Minnesota, Kansas, Nebraska, California, Oregon and other sections, and other new States and Territories, where the cultivation of fruits had scarcely commenced when this Society was established! Who that witnessed the exhibitions of fruit from the States first mentioned at our various sessions in Richmond, Boston, Chicago, and at the Centennial in Philadelphia, has not been surprised at the progress already made.

At the time this Society was formed, the area of fruit culture and the value of our fruits was so limited that it was not thought worth while to collect the statistics. Then many States, Canada and Nova Scotia, had given but little attention to fruit culture, except that of apples. These and other sections were deemed too far North for successful fruit cultivation. Now they produce large quantities of fine fruits, the Nova Scotia Society having received four medals from the Royal Horticultural Society of London, and the Ontario Society, at the Quarter Centennial session in Boston in 1873, the Wilder Medal, for the best collection.

The estimate by the Government for the Centennial, last year, furnished the following statistics (soon to be published), of the fruit culture of our country:

The number of acres under cultivation, in orchards, vines and small fruits, is estimated at 4,500,000. The number of trees is estimated as follows: apples, 112,000,000; pears, 28,260,000; peaches, 112,270,000; grapes, 141,260,000; total, 393,790,000. The estimated value of fruit products is: apples, $50,400,000; pears, $14,130,000; peaches, $56,135,000; grapes, $2,118,900; strawberries, $5,000,000; other fruits, $10,432,800; making a grand total of $138,216,700; or, nearly equal to one-half of the value of our average wheat crop. California, to say nothing of figs, oranges, olives and almonds, has nearly one-third of the whole grape area, sixty thousand acres of vineyards, and forty-three millions of vines, yielding annually, besides grapes and raisins for the market, ten millions of gallons of wines, to which may be added the wines of Missouri, Ohio and other States, the whole wine product being fifteen millions of gallons, as the annual crop.

The following are a few illustrations of the immense quantities of fruits which are sent to market in addition to what is consumed at home.

Of strawberries, there were received in one day, in the New York market at the height of the season, from all sources, 7,000 crates, averaging at least a bushel and a half each—more than 10,000 bushels. The crop of peaches raised in this country is so enormous that we hardly dare state the quantity. The largest crop was in 1875, and on the peninsula of Delaware and Maryland

alone was estimated at between 7,000,000 and 8,000,000 baskets.

From California, according to the statement furnished me by Mr. E. J. Hooper, editor of the California Horticulturist, there were sent East in 1876, three hundred and thirty-four car loads of fruit, of four hundred bushels each; an increase of more than one hundred per cent. over the previous year, one firm having sent seven hundred tons; and of the strawberry, it is estimated that from San Jose and vicinity, some days there were sent for home consumption forty tons of this fruit, and in a circuit of about five miles there are more than a thousand acres of this fruit under cultivation. Dr. Strentzel, our Chairman of the Fruit Committee for California, writes, that, at short notice, that State can furnish the whole continent with an overflowing supply of fruit.

From Virginia, Mr. Leighton, our Vice-President, writes, that the increase of strawberry culture in the vicinity of Norfolk, is astonishing, completely heading the page of horticultural progress, and that it seems wonderful how the demand keeps pace so closely with the supply. The shipments this year have been over three millions of quarts. There were nearly 10,000 pickers in the field in one day. One grower had 185 acres. To Boston alone there have been shipped this year 11,547 crates, of 45 quarts each, or more than 16,000 bushels.

In Illinois very little fruit was raised, except for home use, until 1840, when, according to Mr. Flagg's interesting historical address before the State Horticultural Society, a new era in fruit culture commenced. Now there are 320,000 acres of orchards in that State. Mr. Parker Earle informs me that in a good season there have been sent from his station alone (Cobden) twenty-five car loads of fruit daily. Of strawberries, where scarcely any were raised sixteen years ago for exportation, within six or seven years the cultivation has increased at Cobden and vicinity to over one thousand acres, so that five or six carloads daily are dispatched to the various markets.

From Georgia, Mr. Berckmans, President of the State Horticultural Society, writes as follows of the late exhibition of his Society:

"Many of our people of intelligence were amazed at our progress. The exhibition of fruits was grand. I am safe in saying that the display of peaches was never surpassed, if equalled, in any place in the past. I had fifty-six varieties of peaches, all ripe and in perfection; others had collections almost equal in number, and several surpassing in size. Many had peaches measuring twelve and one-half inches in circumference. The grape show was almost equal to the peach exhibit. Upwards of fifty varieties were exhibited. Some wonderfully fine Concords were shown, which weighed one pound to the bunch. Pears were fine, but not numerous as to varieties." He had forty varieties in eating condition, which, together with the balance of his collection, made nearly two hundred varieties of fruits.

The increase in the crops of apples, in New York, Michigan, and the more Western States, is wonderful.

From New York, it is estimated that in abundant years, one and a half millions of barrels, are exported in addition to those consumed at home, a single firm at Boston receiving from that State from 30,000 to 40,000 barrels of apples per year. In the best seasons, Monroe, Niagara and Orleans counties produce more than one million barrels of apples, and the value in one county is stated to be a million of dollars.

Michigan is a great fruit producing State, and many parts of it fully up to New York. The crop of apples in this State, is estimated by Vice-President Lyon, at $2,000,000 in value; peaches, $1,000,000, and other fruits, $1,000,000, or a total of $4,000,000.

TROPICAL FRUITS.

The reports of Mr. Bishop, Chairman of the Fruit Committee for Florida, and of Mr. Redmond, Vice President for Mississippi, give promise of a great increase in the cultivation of tropical fruit. This, says Mr. Berckmans, has revolutionized the State of Florida within the past ten years. It has long been known that the climate of Florida was well suited to the cultivation of the orange, but is is within the last few years that it has been practically demonstrated that this, as well as many other tropical fruits could be grown with profitable results. Florida oranges were, until within a few years, seldom seen in our northern cities; now the bulk of the consumption is derived from the flowery State. In this, as in many other fruits in other sections of the continent, there has been great improvement; by selecting the best varieties for propagation, until the standard of quality of the orange in California is based upon that of Florida oranges. The lower portions of Mississippi and Louisiana produce large quantities of oranges, but they are seldom shipped to the northern cities, New Orleans consuming all that are produced in the surrounding parishes. Bananas are being extensively grown in lower Florida, and find ready sale at remunerative prices. Limes, shaddocks and lemons have received increased attention, while pineapples have been found to be very successful in the southern portion of Florida. The date begins to thrive successfully on the coast of lower Georgia and will, doubtless, ere long be extensively cultivated. California now raises seven millions of oranges annually, and it appears probable that this State, with the Gulf States, can furnish all the tropical fruits required for the consumption of the whole country.

The immense collection of fruit shown at the Centennial Exposition last year, surpassing even the great exhibitions of this Society at Boston and Chicago, deserves mention here. Mr. Parker Earle, one of the Judges, writes me, "I know that the Judges examined over twelve thousand dishes of fruit during the week, commencing the 10th of September, and I have no doubt the entire exhibition during the season, reached the grand number of over sixty thousand dishes, and over four hundred thousand specimens."

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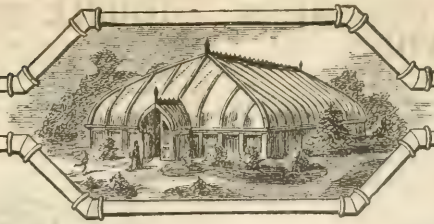
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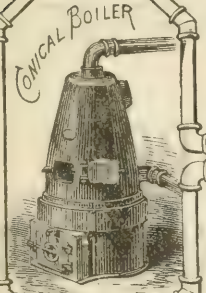


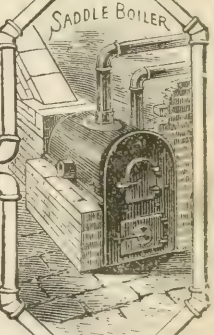
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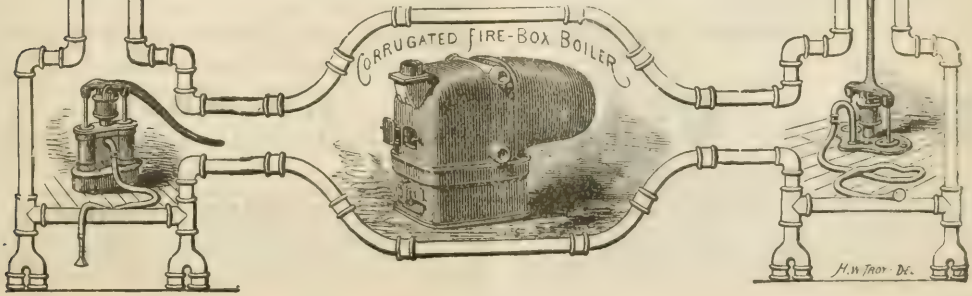
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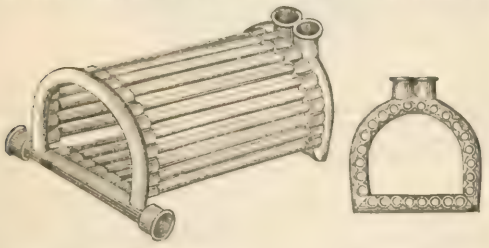
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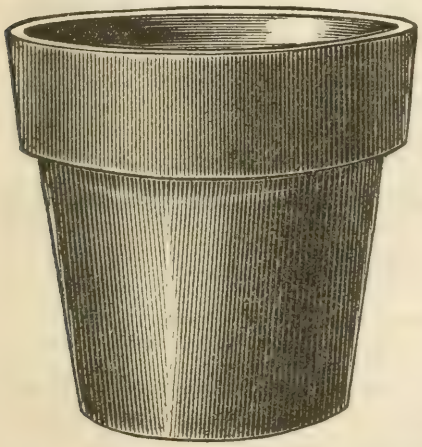
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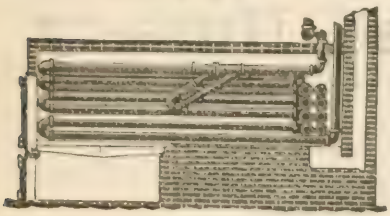
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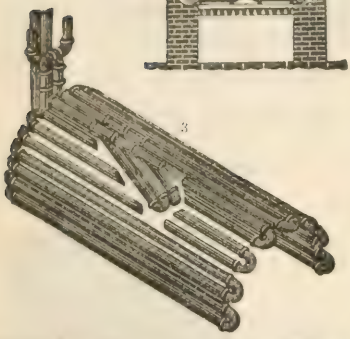
A NEW PRINCIPLE.

The boilers are constructed of horizontal pipes of the same inside diameter as those that form the heating pipes, thereby producing a very rapid circulation of the water.

LENGTH SEVEN FEET.







DESCRIPTION.

No. 1 shows a side view of one-half section, with U steam propeller. Also shows sections of chimney, ash-pit, and brick arch around the boiler, with downward draft to chimney.

No. 2 shows end view, with rear end closed with pipes; ash-pit below and brick arch above.

No. 3 shows boiler before it is set in the brick, with a few pipes broken away, to show the steam generator.

The improvements claimed are: a larger heating surface, as compared to the amount of water in the boiler; a more rapid circulation of water by the use of steam generator to move the water; a larger fire-hole, so that soft coal can be used and not obstruct the draft; and cheapness.

Extracts from the Patent, No. 173,300, Dated February 8th, 1876.

By making the pipes throughout the whole length of the boiler and heater of the same interior diameter there is an even flow through the pipe at all parts, and no shoulders in the pipe to cause any check to the flow.

It is obvious that the boiler-pipes being exactly the same interior size as the radiator and connecting-pipes, a new and quite valuable result is obtained, as the simultaneous movement of the water is insured through the whole series of pipes at the same speed, thus preventing any eddy and dead water.

The U-formed steam water propeller, by descending into the furnace and entering the water-pipe at an inclination, causes a circulation in the water-pipes almost immediately the fire is lighted, and before the water has time to become heated in the water-pipes. The end bends of the water-pipes, which close partially the back of the fire-space, receive the full blast of the products of consumption.

TRUTHS TO BE CONSIDERED.

If water moves rapidly into and out of the furnace it must carry off the heat rapidly into the room to be heated, thereby saving the fuel. The front is of iron and can be easily removed to clean out dust, &c.

SETTING THE BOILER.

Build foundation wall 12 inches wide, so the pipes will set about 1½ inches inside the walls, and 3 inches above the grate bars; let the boiler rest on one fire brick at front and one at rear. Let the rear bridge wall for the grate bars be heavy and raise above the grate bars about 10 inches to one foot, and of fire brick. The Chimney should be started from the bottom of the furnace, and be at least 25 feet high, and an opening at least one foot sqare.

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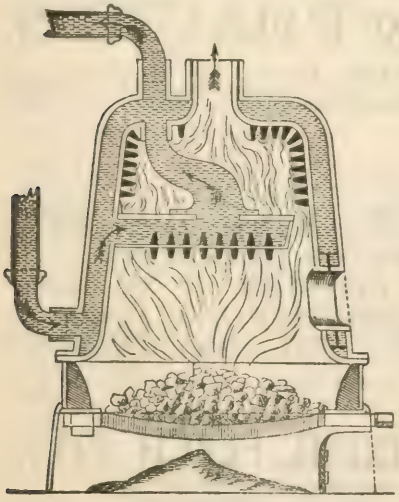
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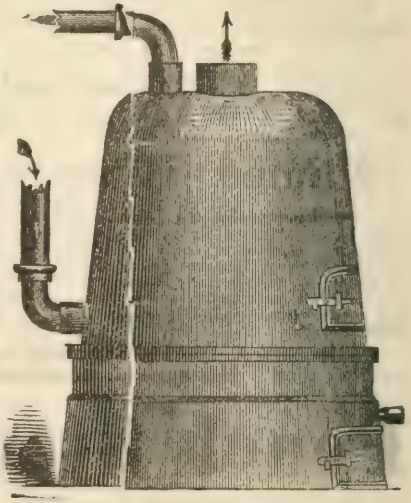
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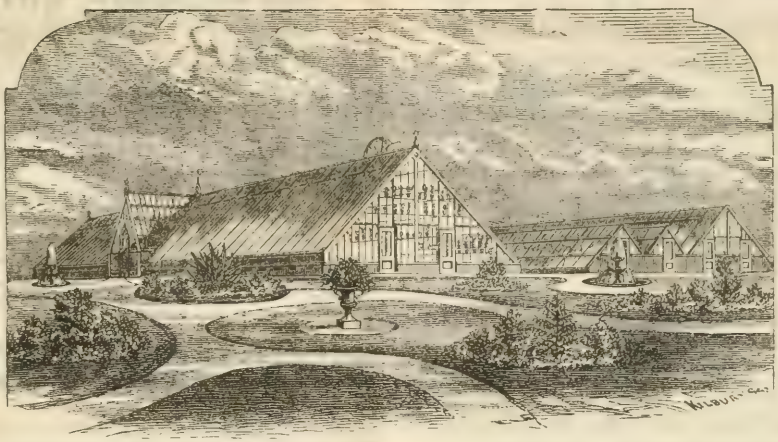
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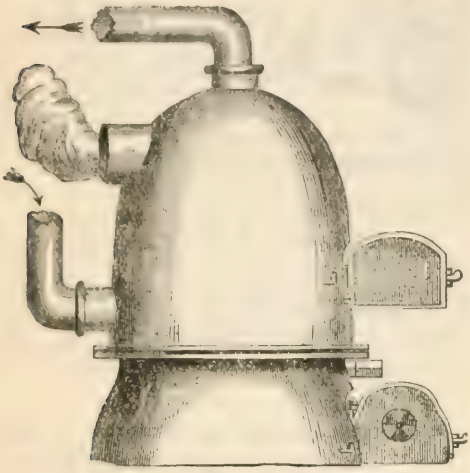


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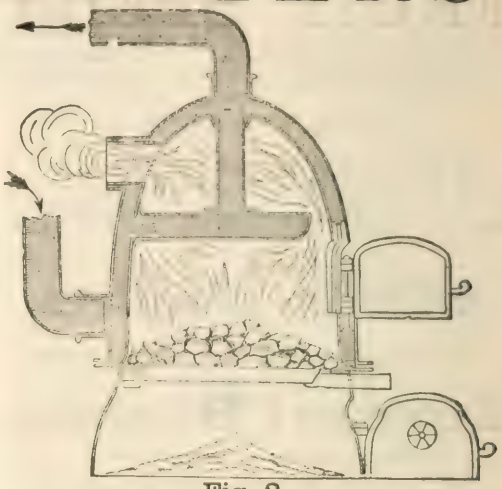


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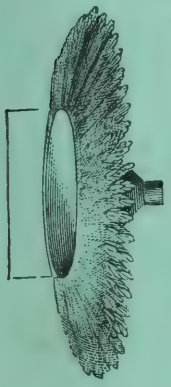
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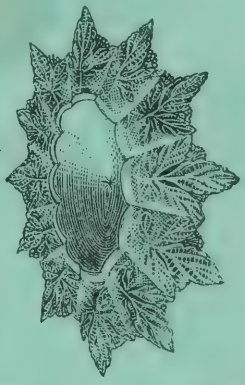
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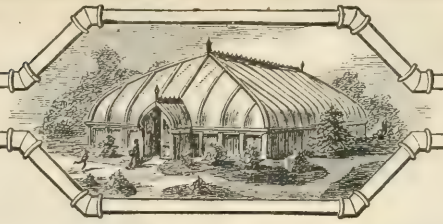
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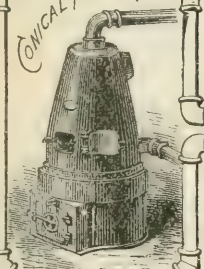


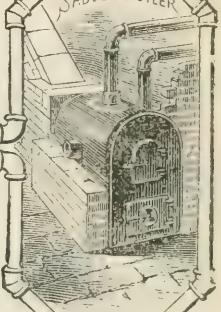
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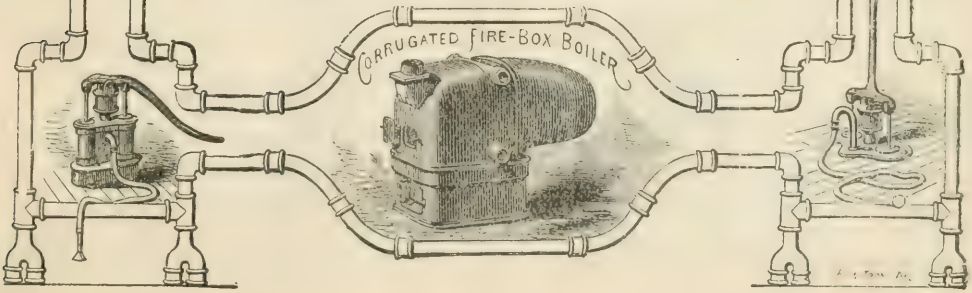
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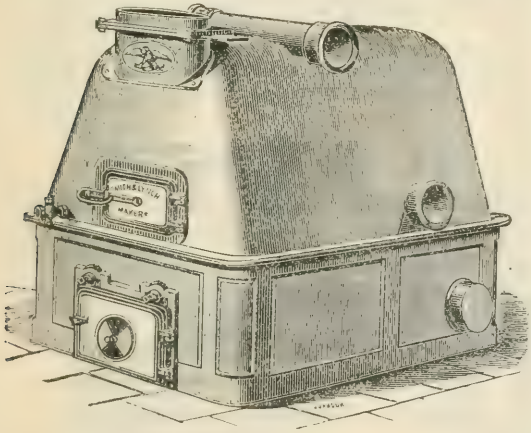
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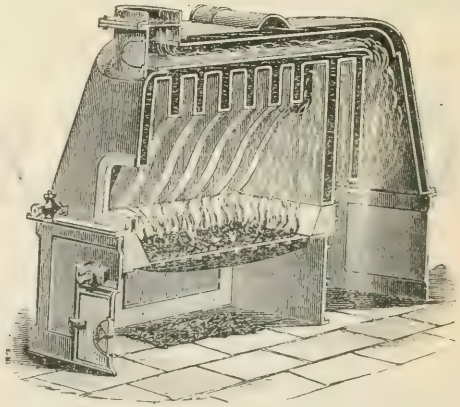
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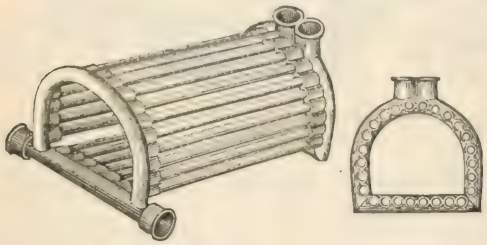
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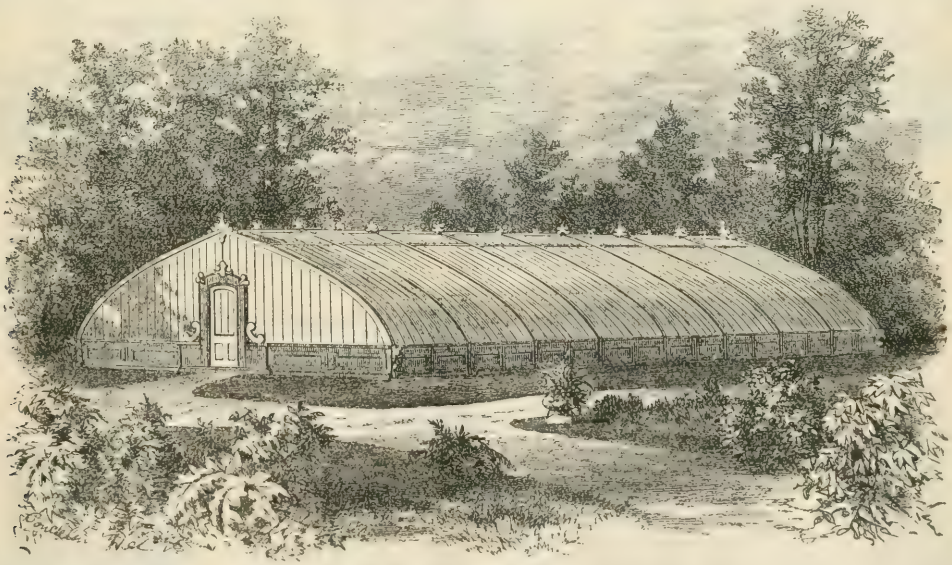
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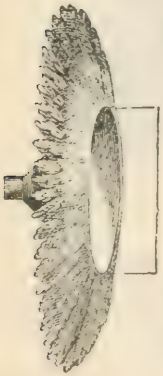


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YOUNG ROSES, in the very choicest varieties, fine healthy plants rooted last Summer: price, $6.50 per 100, $60 per 1000. Gl. de Dijon, Devoniensis, Marie Guillot, Aline Sisley Shirley Hibberd, Souv'r d'un Ami, Safrano, Bon Silene, Luxembourg, Countess Labarthe, M. Neil, Mad. Cecil Berthod, A. Aubert, Hermosa, Malmaison, &c., &c.

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FOR WARMING Dwellings, Greenhouses, Graperies, Forcing Pits, Drying Rooms
Heating Water for Public Baths, Baptisteries, &c., by Hot Water or by Steam.

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We offer **TO THE TRADE** and others in large or small quantities, Camelias (full flowering buds), Azaleas, Eucharis Amazonica, Bletias, Tankervilias and Sarroerdias Cypripedium insignis, Dracenas (varieties) Guzmania picta, Yucca quadricolor, Daphne Indica, Phormium Tenax (var.) Crinum amabilii, Strelitzia Regina, Pine Apples, Quadricolor, and others, Imantophyllums, Marantas, &c. We have a large stock of valuable plants and can always send out FINE PLANTS at low rates. Send address for Catalogue.

tnov6 **JOHN SHERWOOD & SON, Bristol, Pa.**

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IMPROVED HOT WATER APPARATUS,

Patented September 17, 1872.

For Warming and Ventilating Dwellings, Greenhouses, Graperies, Forcing Pits, Drying Rooms, Heating Water for Public Baths, &c.

This Boiler is perfectly self-cleaning, simple, economical and powerful, having more effective surface into less space than any Boiler in the market. **Scollay's Patent Plant Sprinkler, for Window Gardening, &c.,** to be obtained of all Seedsmen, Florists, &c. Send for Circular and References. nov.12

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Chamærops, Latanias,

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Greenhouse Plants, Roses, Tuberoses, and a great collection of Bedding Plants. Address,

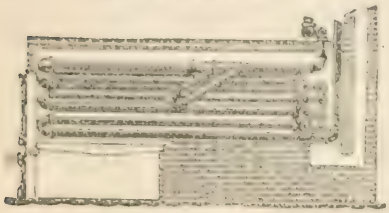
A. HENRY & C. HUGO JAQUOT,
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Jordan's Patent Wrought Iron Water Heater.

A NEW PRINCIPLE.

The boilers are constructed of horizontal pipes of the same inside diameter as those that form the heating pipes, thereby producing a very rapid circulation of the water.

LENGTH SEVEN FEET.







DESCRIPTION.

No. 1 shows a side view of one-half section, with U steam propeller. Also shows sections of chimney, ash-pit, and brick arch around the boiler, with downward draft to chimney.

No. 2 shows end view, with rear end closed with pipes; ash-pit below and brick arch above.

No. 3 shows boiler before it is set in the brick, with a few pipes broken away, to show the steam generator.

The improvements claimed are: a larger heating surface, as compared to the amount of water in the boiler; a more rapid circulation of water by the use of steam generator to move the water; a larger fire-hole, so that soft coal can be used and not obstruct the draft; and cheapness.

Extracts from the Patent, No. 173,300, Dated February 8th, 1876.

By making the pipes throughout the whole length of the boiler and heater of the same interior diameter there is an even flow through the pipe at all parts, and no shoulders in the pipe to cause any check to the flow.

It is obvious that the boiler-pipes being exactly the same interior size as the radiator and connecting-pipes, a new and quite valuable result is obtained, as the simultaneous movement of the water is insured through the whole series of pipes at the same speed, thus preventing any eddy and dead water.

The U-formed steam water propeller, by descending into the furnace and entering the water-pipe at an inclination, causes a circulation in the water-pipes almost immediately the fire is lighted, and before the water has time to become heated in the water-pipes. The end bends of the water-pipes, which close partially the back of the fire-space, receive the full blast of the products of consumption.

TRUTHS TO BE CONSIDERED.

If water moves rapidly into and out of the furnace it must carry off the heat rapidly into the room to be heated, thereby saving the fuel. The front is of iron and can be easily removed to clean out dust, &c.

SETTING THE BOILER.

Build foundation wall 12 inches wide, so the pipes will set about 1½ inches inside the walls, and 3 inches above the grate bars; let the boiler rest on one fire brick at front and one at rear. Let the rear bridge wall for the grate bars be heavy and raise above the grate bars about 10 inches to one foot, and of fire brick. The Chimney should be started from the bottom of the furnace, and be at least 25 feet high, and an opening at least one foot sqare.

PRICE OF BOILERS (OF WROUGHT IRON, WITH IRON FRONT AND GRATE BARS.)

Small boilers without grate bars or iron front....	$25 to $50	each.	
No. 1 to heat 500 to 750 feet of pipe.....	$ 75.00	"	
" 2 " 750 " 1000 " " "	100.00	"	
" 3 " 1000 " 1500 " " "	125.00	"	
No. 4 to heat 1900 to 2000 feet of pipe.....	$175.00	each	
" 5 " " 2000 " 3000 " " "	225.00	"	
" 6 " " 3000 " 5000 " " "	300.00	"	
Valves for 4 inch pipe.....	10.00	"	

Large boilers made to order. Where no iron front or grate bars are wanted, 10 per cent. deducted.

Water-pipe and all kinds of fittings at present 30 per cent. off the card prices.

Men furnished to put up the furnace and contracts taken to heat any building, and can be placed where hot air furnace has been used.

We have had seventeen years experience in handling water heaters, and can guarantee our work.

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AND

BEAUTIFUL PLANTS,

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NEW STRIPED ROSE,

BEAUTY OF GLAZENWOOD.

A HYBRID TEA, one of a most distinct and novel kind. The ground tint is a lovely golden yellow, darker than, but after the style of, Madame Falcot, each petal being distinctly striped, and flaked with a bright carmine, as often seen in the coloration of some Tulips, the buds, before expanding, being boldly and beautifully marked with crimson. It is impossible to convey by description the marking and beauty of this charming Rose; but it is, without doubt, the most striking novelty introduced for years.

"A Rose of golden-yellow, s'riped and flaked with scarlet or vermlion sounds like a dream or a fairy tale; it is, nevertheless, a reality."—H. CURTIS, in THE GARDEN.

New Roses—The finest new French and English Varieties.
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With an immense stock of **new** and **beautiful** plants well grown—all of which are offered at low rates.
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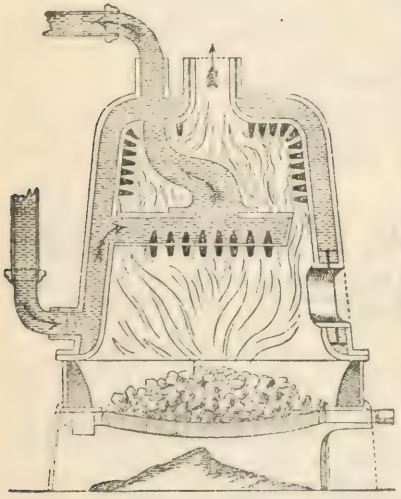
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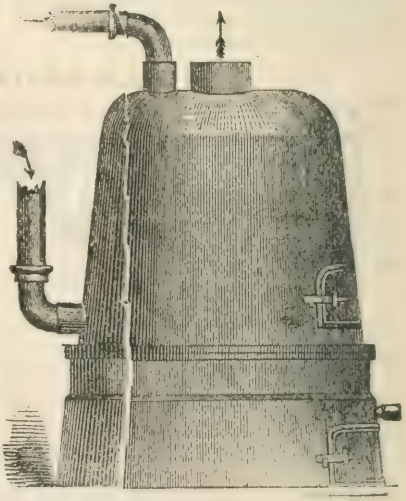
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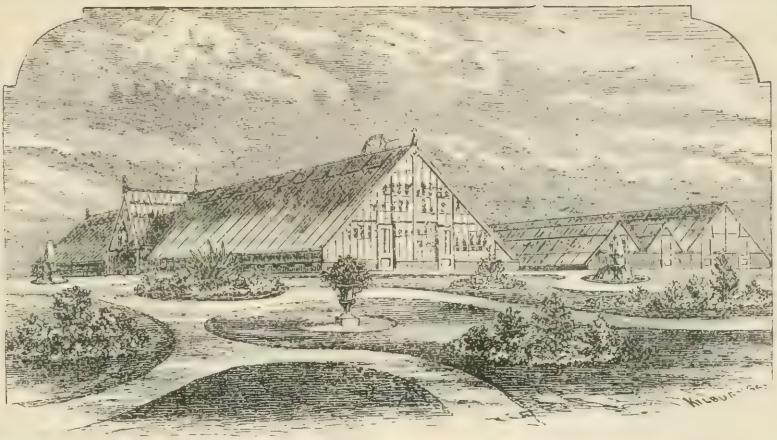
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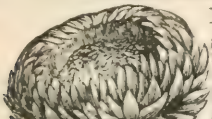
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5,000 " " 8 to 10 feet.
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TOBACCO STEMS,

For **Fumigating** purposes, for sale in bales of about 400 lbs., free on boat or cars at $5 per bale, or three bales for $12 on one order.

STRAITON & STORM,
178 & 180 Pearl Street,
aug12 New York City.

Decorative Plants.

Send for our New Trade List of **Palms, Ferns**, and other **Greenhouse and Stove Plants.** We offer a large assortment at low rates.

HOOPES, BRO. & THOMAS,

Cherry Hill Nurseries. sep6 West Chester, Pa.

Peach Stones

AND OTHER

FRUIT SEEDS.

Notwithstanding the general scarcity of Fruit Seeds this season we expect to furnish our customers with full supplies at our usual low prices; but solicit

EARLY ORDERS.

THOMAS MEEHAN,

sep GERMANTOWN, PHILA.

PROTECT YOUR BUILDINGS.

Which may be done with one fourth the usual expense, by using our

PATENT SLATE PAINT

(Fifteen Years Established.)

MIXED READY FOR USE.

Fire-proof, Water-proof, Durable, Economical and Ornamental.

A roof may be covered with a very cheap shingle, and by application of this slate be made to last from 20 to 25 years. Old roofs can be patched and coated, looking much better and lasting longer than new shingles without the slate, for

One-third the Cost of Re-shingling.

The expense of slating new shingles is only about the cost of simply laying them. The paint is FIRE-PROOF against sparks or flying embers, as may be easily tested by any one.

IT STOPS EVERY LEAK,

and for tin or iron has no equal, as it expands by heat, contracts by cold, and NEVER CRACKS nor scales. Roofs covered with Tar Sheathing Felt can be made water-tight at a small expense, and preserved for many years.

This Slate Paint is

EXTREMELY CHEAP.

Two gallons will cover a hundred square feet of shingle roof, while on tin, iron, felt, matched boards, or any smooth surface, from two quarts to one gallon are required to 100 square feet of surface, and although the paint has a heavy body it is easily applied with a brush.

No Tar is used in this Composition,

therefore it neither cracks in Winter, nor runs in Summer.

On decayed shingles, it fills up the holes and pores, and gives a new substantial roof that will last for years. CURLED OR WARPED shingles it brings to their places, and keeps them there. It fills up all holes in felt roofs, stops the leaks—and although a slow dryer, rain does not affect it a few hours after applying. As nearly all paints that are black contain TAR, be sure you obtain our genuine article, which (for shingle roofs) is

CHOCOLATE COLOR,

when first applied, changing in about a month to a uniform slate color, and is, to all intents and purposes SLATE. On

TIN ROOFS

our red color is usually preferred, as one coat is equal to five of any ordinary paint. For

BRICK WALLS

Our BRIGHT RED is the only reliable Slate Paint ever introduced that will effectually prevent dampness from penetrating and discoloring the plaster.

These paints are also largely used on cut houses and fences, or as a priming coat on fine buildings.

Our only colors are CHOCOLATE, RED, BRIGHT RED, and ORANGE.

NEW YORK CASH PRICE LIST.

1 Gallon, can and box		$1 50
2 " "		2 35
5 " "		5 50
10 " keg		9 50
20 " half barrel		16 00
40 " one barrel		30 00
10 lbs., cement for bad leaks		1 25

We have in stock of our own manufacture, roofing materials, etc, at the following low prices:

1000 rolls extra Rubber Roofing, at 3 cents per square foot. (Or we will furnish Rubber Roofing, Nails, Caps, and Slate Paint for an entire new roof, at 4½ cents per square foot.)

2000 rolls 2-ply Tarred Roofing Felt, at 1¾ cents per square foot.

3000 rolls 3-ply Tarred Roofing Felt, at 2½ cents per square foot.

200 rolls Tarred Sheathing, at ½ cent per square foot.

500 gallons fine Enamel Paint, mixed ready for use, on inside or outside work, at $2 per gallon, all shades.

1000 Bbls Slate Flour	per bbl.		$3 00
1000 " Soapstone Flour	"		3 00
1000 " Grafton Mineral	"		3 00
1000 " Metallic Paint, dry	"		3 00

Special prices per ton or car-load lots.

All orders must be accompanied with the money, or subject to 30 days draft on well known parties.

N. Y. SLATE PAINT COMPANY,
102 & 104 Maiden Lane, New York.
feb3

WEATHERED & CHEREVOY'S

PATENT BOILERS

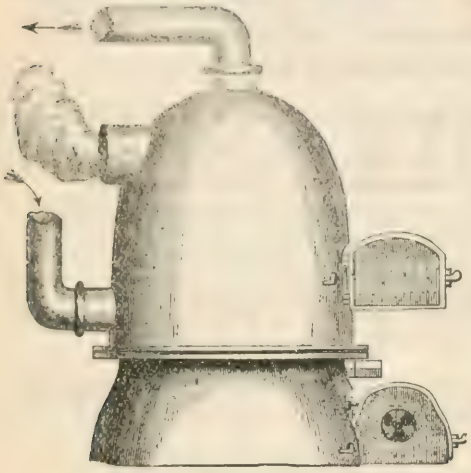


Fig. 1.

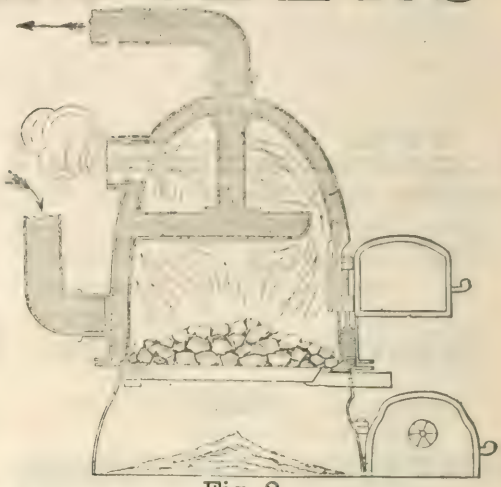


Fig. 2.

AND IMPROVED

HOT WATER APPARATUS,

No. 46 Marion Street, between Spring and Prince, New York.

(TWO BLOCKS EAST OF BROADWAY.)

For Warming and Ventilating Public Buildings, Private Dwellings, Greenhouses, Graperies, Forcing Pits, Drying Rooms, and Heating Water for Public Baths.

Fig. 1 is an outside view. **Fig. 2** is a vertical section through the centre.

The following are a few names of Gentlemen who have our Boiler in use:

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Simon Cameron, Esq., Harrisburg, Pa.
J. D. Cameron, Esq., Harrisburg, Pa.
Thos. Carter, Esq., Raleigh, N. C.
J. H. Dunham, Esq., Chicago, Ill.
Jas. B. Waller, Esq., " "
W. J. Gordon, Esq., Cleveland, Ohio.
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D. M. Osborn, Esq., Auburn, N. Y.
John B. Dutcher, Esq., Pawling, N. Y.
A. M. Allerton, Esq., Bronxville, N. Y.
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Peter Hoe, Esq., " "
George Lewis, Esq., " "
Wm. H. Drew, Croton Falls, "
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Philip Caswell, Esq., Newport, R. I.
Alfred Smith, Esq., " "
Wm. Findlay, Esq., " "
E. Learned, Esq., Pittsfield, Mass.
D. O. Mills, Esq., San Francisco, Cal.
W. L. Ferris, Esq., Westchester, N. Y.
D. H. Haight, Esq., Goshen, N. Y.
F. Newbold, Esq., Newark, N. J.
James T. Closson, Esq., Plainfield N. J.
Daniel W. Coit, Esq., Norwich, Conn.
J. F. Slater, Esq., " "
H. W. Collender, Esq., Darien, "
Chas. P. Palmer, Esq., Stonington, "

Wm. D. Black, Esq., New Milford, Conn.
Rev. Stephen H. Tyng, Irvington, N. Y.
H. F. Spaulding, Esq., Riverdale, "
S. D. Babcock, Esq., " "
Percy R. Pyne, " "
Elisha Brooks, Esq., Inwood, "
Camille Marie, Esq., " "
A. F. Smith, Esq., Fort Washington, "
R. M. Olyphant, Esq., Dobb's Ferry, "
Clarkson N. Potter, Esq., New Rochelle, "
Chas. D. Dickey, Esq., West Farms, "
Wm. Matthews, Esq., Harrison, "
William Chorlton, Esq., New Brighton, S. I.
F. H. Wolcott, Esq., Astoria, L. I.
Bailey Leach, Esq., " "
Hon. W. B. Ogden, High Bridge, N. Y.
Peter Moller, Esq., 295 Fifth Ave., New York City.
Wm. Moller, Esq., 6 West 20th St., " "
John Moller, Esq., 127 East 54th St., " "
John Moller, Esq., 8 East 37th St., " "
Ch. Moller, Esq., 425 Washington St., " "
Henry B. Laidlaw, Esq., 33 Pine St., " "
George W. Lane, Esq., 93 Front St., " "
J. P. Robinson, Esq., 14 Coenties Slip, " "
J. B. Colgate, Esq., 47 Wall St., " "
John B. Trevor, Esq., 47 Wall St., " "
Charles Butler, Esq., 12 " " "
Richard Arnold, Esq., 309 Canal St., New York City.
Jas. M. Constable, Esq., 309 Canal St., " "
W. T. Garner, Esq. 61 Worth St., N. Y. City.

Please send for Circular with list of References and Reduced Prices to

THOMAS W. WEATHERED, 46 Marion Street, N. Y.



THE SUBSCRIBERS OFFER

SEASONABLE SEEDS

FOR

HOT-BED SOWING,

ALL OF PRIME QUALITY.

Especial attention is invited to two varieties of Cabbage, recently introduced by them, viz:

BLOOMSDALE EARLY MARKET,

(Maturing in July), and

BLOOMSDALE EARLY DRUMHEAD,

(Maturing in August).

A single trial of these will establish their worth for market purposes and family use. A paper of each will be mailed *FOR TRIAL* on receipt of *TWENTY CENTS*, and in addition, *WITHOUT CHARGE*, a smaller paper of the

BLOOMSDALE BRUNSWICK CABBAGE,

(maturing in July)—the latter not yet offered for sale. Seed of the

BLOOMSDALE BULLOCK HEART,

a first early sort, of surpassing excellence, not yet offered, will be ready in August. Market Gardeners will please make a note of it.

DAVID LANDRETH & SONS,

PHILADELPHIA.

N. W. AYER & SON,
ADVERTISING AGENTS,
HAVE REMOVED

—TO THE—

Times Building, Chestnut and Eighth Sts., Philadelphia.

Commencing business early in 1869, we first located at 530 Arch street, as the representatives of the Philadelphia Religious Weeklies, which up to that time were comparatively unknown to advertisers. Our anticipations did not then extend beyond a comfortable business on the **eleven papers** comprising our **first list**; but in the fall of the same year, so encouraging had been our success, that we determined to extend the sphere of our operations to include the papers published in the vicinity of Philadelphia, and in order to secure a more central location removed to 712 Sansom street. Here our business continued to develop very satisfactorily. In January, 1872, we leased the premises No. 733 Sansom street, thereby securing very commodious rooms, the number and size of which were gradually extended as growth of business demanded enlarged accommodations, until we finally occupied more than half of the entire building, and had our employees scattered over three different floors. Learning the intention of the publishers of The Times to erect their present building, we at once commenced with them the negotiations which resulted in such changes of their plans and specifications as were needed to make for us the most commodious accommodations. We are now located at the intersection of the two leading business thoroughfares of Philadelphia, in one of the most prominent and attractive buildings in the city, having a frontage of fifty feet on Chestnut street, and eighty-four on South Eighth street. The entire second floor and a part of the third have been specially constructed to suit our wants, and with their elaborate fittings make the most elegant and convenient offices that have ever been arranged for the advertising business. We are thus enabled to bring the different departments of our business into immediate connection, and thereby concentrate our working force, so that we now possess all the accommodations which experience has shown to be requisite or desirable. Our employees number *twenty*; and we frequently find this force scarcely adequate to accomplish the work.

This brief sketch will suffice to show that from a very small beginning **our agency** *has rapidly grown* to be one of **the largest** of its kind **in the COUNTRY.**

Our entire business is thoroughly systematized, and our facilities for its transaction are unsurpassed. We keep the leading papers of the country constantly on file; and our special contracts with them are so numerous and favorable that we can offer the very lowest prices for advertising, and to responsible parties the most advantageous terms of settlement. *We have no canvassers' commissions to pay*, but employ our men entirely on salary, giving at once to the advertiser all the discount that can be afforded. We are at all times pleased to furnish promptly and without charge, estimates showing the cost of advertising in any paper or list of papers, and guarantee the strict fulfillment of all orders entrusted to our care. *It costs nothing to get our figures;* and it will pay every advertiser to do so before contracting for any newspaper advertising.

AYER & SON'S MANUAL

For Advertisers, an elegantly printed book of **128** royal octavo pages, is sent postpaid, upon application, to all who contemplate advertising. It contains carefully prepared lists of leading daily, weekly, and monthly newspapers in the United States and Canada, with valuable information regarding circulation and advertising rates, so arranged and classified as to enable an advertiser to select without difficulty the mediums best suited to any particular purpose. It tells how, when, and where to advertise wisely and cheaply, and will enable you to secure the largest amount of advertising for the least amount of money. **Send for it.** We also publish

THE ADVERTISER'S GUIDE,

A Quarterly Magazine, devoted to the Interests of Advertisers and Newspaper Publishers. Fifty Cents per Year, postpaid.

Each number is well filled with interesting and instructive reading matter, together with valuable information regarding newspapers. Our aim is to disseminate a more general knowledge of newspaper advertising and the advantages to be gained by it. We therefore make the following offer: to all persons advertising through this agency to the amount of **FIVE DOLLARS,** we will send the Advertiser's Guide, postpaid, without further charge.

OUR PRINTING OFFICE.

We have our own printing-office, well filled with type peculiarly adapted to the proper display of advertisements, and keep three men employed exclusively on the work arising from our advertising business. We are thus enabled to furnish, without expense to the advertiser, a proof showing just how the copy desired will look in type. Our compositors having for years made this branch of type-setting a study, know how to reduce an advertisement into the smallest compass consistent with its proper display, and thus enable us to secure to an advertiser the largest amount of publicity in the least possible space, and consequently for the smallest expenditure of money. All these advantages we offer free of charge, to those who avail themselves of our unsurpassed facilities, and shall be glad to correspond with all who contemplate the expenditure of any money in newspaper advertising.

Our offices are at all times open for inspection, and we take pleasure in showing their inside workings to any who may call. In conclusion allow us to ask that you

GET OUR ESTIMATE BEFORE MAKING ANY ADVERTISING CONTRACTS.

N. W. Ayer and Son

ADVERTISING AGENTS,

Times Building, Chestnut and Eighth Streets, Philadelphia.



FLOWER POTS BY THE MILLION!

The BEST, CHEAPEST and MOST DURABLE FLOWER POTS in the MARKET.

Also a full line of

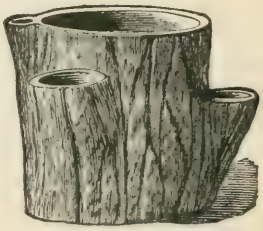
Vases, Fancy Flower Pots, Hanging Baskets, &c.,

At the

NEW BRIGHTON

Flower Pot and Terra-Cotta

WORKS.



Illustrated Catalogue on application.

febtf Address, **ELVERSON & SHERWOOD, New Brigh.on, Pa.**

HOVEY & CO'S.

Illustrated Guide and Catalogue of Flower

And VEGETABLE SEEDS,

And HORTICULTURAL REQUISITES,

And NOVELTIES in SEEDS,

For 1877, now ready, gratis, and sent free on application.

HOVEY & CO.,

No. 53 North Market Street, Boston.

feb1

SEEDS.

My Annual Priced Catalogues are now ready and mailed free to all applicants. They contain all the leading and most popular sorts of

VEGETABLE, FIELD, AND FLOWER SEEDS.

including all the most desirable novelties of the past season.

ALFRED BRIDGEMAN.

feb4 876 Broadway, near 18th St., N. Y.

100,000 VERBENAS.

We offer to the trade 100,000 Verbenas, fine and vigorous, and entirely free from *Rust* or Mildew.

Fine stocky plants grown in

2½ in. Pots, $3 per 100, $25 per 1,000
3 " " $4 " " $35 " "

Packing free. Terms cash. Address,

BENJ. A. ELLIOTT & CO.,

feb1 **114 Market St., Pittsburg, Pa.**

OUR NEW CATALOGUES OF

TREES, SEEDS AND PLANTS,

Will be mailed free on application to

JOHN R. & A. MURDOCH,

Nurserymen, Florists and Seedsmen,

feb1 PITTSBURGH, PA.

SEEDS!

Choice Selected Field, Flower, Tree, Grass, Herb Vegetable and Honey Plants. Garden and Apiarian Implements and Supplies. Agricultural Books, &c. Our new Descriptive Catalogue sent free for ten cents.

Price Lists free to all applicants. Address carefully,

C. F. LANE'S

N-W-Apiary and Seed Warehouse,

feb12 **Koshkonong, Wis.**

$57 60 **Agents' Profits Per week.**—Will prove it or forfeit $500. New articles just patented. Samples sent free to all. Address W. H CHIDESTER, 218 Fulton St., N.Y.

HENRY MICHEL & CO.,

Seedsmen and Florists

107 N. FIFTH ST., ST. LOUIS, MO.

BULBS—TUBEROSE, DAHLIAS, AMARYLLIS, CALADIUMS, &c.

	PER 100	PER 1000
Amaryllis Formosisima (Jacobea Lily)	$20.00	
" Rosea	10.00	
Caladium Esculentum (extra large)	20.00	
" " (good roots)	10.00	$75.00
Dahlias, over 100 named varieties (strong roots	10.00	80.00
Ismene Calathina (extra strong,	30.00	
Phycella obtusa	20.00	
Tuberose Pearl (extra large, selected)	6.00	50.00
" " (good flowering buds)	5.00	40.00
" " (selected sets)	2.00	12.50
" Double (extra large)	6.00	50 00
" " (flowering bulbs)	4.00	30.00
" Single (extra large)	6.00	50.00
" " (flowering bulbs)	4.00	30.00
" Variegated foliage	8.00	
Tigridia Conchiflora	3.00	20.00
Pæonia Sinensis, in ten varieties	8.00	60.00
" " fragrans (fragrant double Pink)	6.00	40.00
Funkia Cœrulea and Grandiflora	6.00	50.00
Yucca filamentosa (strong good tops)	15.00	
Oleanders, double pink, 2 ft.	15.00	
Ferns adiantum, Capellis veneris (true)	8.00	
Calla Ethiopica (in 3 in. pots)	5.00	
Gladiolus Brenchleyensis	3.00	25 00
" Mixed	3.00	25.00

(Wholesale Price List furnished to Dealers.)

Our Flower and Garden Seed Catalogues are now ready for free distribution. Address,

HENRY MICHEL & CO.,

tfeb2 107 N. 5th St., St. Louis, Mo.

BELLEVUE AVENUE NURSERIES.

Wilson Blackberry, Wilson's Albany Strawberry, Concord Grape Vines, and a general assortment of Small Fruit Plants: also, Ornamental Trees, Shrubs, Gladioli, Dahlias, &c., &c. For sale at lowest rates, wholesale and retail, by

WM. F. BASSETT,

feb2 Hammonton, N. J.

200,000

CHOICE GREENHOUSE & BEDDING PLANTS of the finest NEW, RARE, and older Varieties, offered at greatly reduced prices, packed to go safely any distance by mail or express, satisfaction guaranteed. Send 3-cent stamp for our illustrated catalogue of plants for 1877. Special Wholesale and Retail Price Lists Free. Address,

PAUL BUTZ & SON,

Established, 1851. "Croton Floral Gardens," New Castle, Pa.

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1877.

ODESSA NURSERIES.

We offer a Large and well selected stock of

PEACH TREES.

Also, Pear, Apple, Plum, Quince, Ornamental and Shade Trees.

LARGE STOCK OF

OSAGE ORANGE, also, SMALL FRUIT PLANTS,

Gooseberry, Currant, Grape Vine, Raspberry, Blackberry and Strawberry.

General assortment of Nursery Stock.

☞ Send for PRICE LIST. Address,

feb3 POLK & HYATT, Odessa, Delaware.

WILLIAM SUTHERLAND,

Florist, Landscape and Practical Gardener,

Twenty-first St., bel. Green, Philadelphia.

Fruit, Shade, and Ornamental Trees, Evergreens, Grape Vines, Roses, and a general assortment of Greenhouse and Bedding Plants. Boquets and Floral Decorations furnished. Gardening in all its branches. Plans and Estimates made, and Correspondence solicited. First-class references given on demand. tfeb3

NEW and RARE

PLANTS!

For 1877.

Amorphophallus Riveri, strong tubers, per doz.	$4.00
" " 2d size, " "	3.00
Bambusa Aurea, Dwarf golden striped bamboo, per doz.	4.00
" Simonsi argentea Fall silver striped " " "	4.00
Caladium, Fancy varieties, dry tubers of the following named varieties, per 100	12.00
Auber, Beethoven, Baron Rothschild, Bicolor splendens, Bicolor picturata, Boieldieu, Brognarti, Chantini, Duc de Ratibor, Duchartre, Duc de Nassau, Enckei, Endlicherianum, Houlletti, Hercules, Maxime Duval, Milton, Meyerbeer, Newmani, Napoleon III, Queen Victoria, Rubra maculata, Triomphe de Exposition, Rossini, Wighti.	
Colocasia Bataviensis, much darker leaves and stem than C. Esculenta, growing quite as large, per 100	6.00
Cordyline indivisa, 2 feet, per doz.	3.00
Ferns. The following choice sorts in 3-in. pots, per 100	10 00
Golden and Silvery sorts, Pteris rubra venia, Pteris tricolor, P. Nemoralis, P. Argyrea, the best sorts of Adiantums, &c., &c.	
Geraniums, **Laxton's Latest!** The Ghost, Real Double White, each	.50
" **Laxton's Latest!** Wilfred, Fine Double White, each	.50
" **Louis Boutard,** large bright double orange salmon, a great improvement on Asa Gray	.50
" **Meteor Flagg,** double crimson scarlet, perfection	.50
" **Nœmie,** bluish pink, large white centre	.50
" **Edward Sequin,** rich crimson shaded vermilion	.50
" **Apple Scented,** fine young plants (seedlings) per 100	8.00
Latania Borbonica, plants 2 to 3 fans, per doz.	5.00
" " " 3 to 5 " "	7.50
Pelargonium, New Double or Regal—Beauty of Oxton, each,	.75
" **New Double or Regal—Prince of Novelties,** per doz.	4.00
" **New Double or Regal—Queen Victoria,** per doz	5.00
Petunia, Dreer's Strain of New Double Varieties. Set of 77; in advance of any former introductions, many finely fringed stock plants, per doz.	3 00
Poinsettia, new, double, strong young plants, each	3.00

For Novelties and older sorts, send for Dreer's Garden Calendar for 1877, now ready and mailed free.

We beg to call the attention of THE TRADE to our stock of Fern Seeds saved carefully from our large collection, Smilax and other seeds for present planting, all of which please find described in the Calendar for 1877

HENRY A. DREER,

Seedsman and Florist,

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VERBENAS.

Strong, Healthy Plants, of the best varieties now ready, at $4.00 per hundred, $30 per 1000 Address,

J. R. & A. BATHER,

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Cauliflower Seeds.

1. New, best, earliest Giants, @ 50 francs, gold per kilo.
2. Early seed of Neapolitan Giants, @ 40 francs, gold per kilo.
3. Half-late seed of " " @ 35 " " " "

Onion Seeds.

1. **Marzaiola,** White, early, very small (Nocera) 7 frs. gold per kilo.
2. **Maggiaiola,** " (May), small, " " "
3. **Aostegra,** " (August) very large, " " "
4. **Della Rocca,** Red, late, (Salerno) " " "
5. **Sanguigna,** Blood-red, latest, " " "

I would also beg to call the attention of the trade to the **ORANGE TREES,** which I export: height of trunk, 1½ to 2 metres; diameter of trunk, 4 to 6 centimetres. Price, 10 francs each, package extra.

VINCESLAO KREUPPER, Horticulteur,
Exporter of Seeds and Plants, at Naples, Italy.
tfeb6

VERBENAS, 30 VARIETIES.

Free from Rust, Greenhouse and Bedding Plants, Cut Flowers, for the **Trade.** Orders by mail or telegraph. Address
SAMUEL DICKEY, Oxford, Pa.
tfeb5 Phila. & Balt. C. R. R.

10,000 VERBENAS,

EXTRA STRONG PLANTS,
$4.00 PER HUNDRED.

1000 Prime Roses and Cinerarias,

$15.00 PER HUNDRED.

A. B. ROMMEL & CO., Florists,

Pittston, Luzerne County, Pa.

PEACH TREES.

One year, 4 to 6 ft. **stocky, general assortment. NORWAY, SUGAR** and **SILVER MAPLES,** all sizes. **APRICOTS,** one and two years. **CHERRY,** two years, 5 to 9 ft. **RED DUTCH CURRANTS, ARBORVITÆS, AMERICAN, SIBERIAN,** and **HOVEY'S GOLDEN,** all sizes. **IRISH JUNIPERS,** 1 to 5 ft. **HEMLOCKS,** bushy, 2 ft. stock of best quality, and offered low.

P. S.—A Post Office is now established at Malvern, P. R. R., adjoining the Nursery, which is our P. O., Express, and Freight Station. Paoli the former office being one mile away. [febtf
JOSIAH A. ROBERTS, Malvern, Chester Co., Pa.

100,000 Carnations and Verbenas,

From propagating beds, Plants perfectly healthy. Send for Wholesale Price List, free.

W. C. SMITH,
Suffield, Conn.

January 1st, 1877.

FREE TO ALL.

Our Illustrated Catalogue of Plants, Seeds, Bulbs, Shrubs, Trees, &c., with fine Colored Plate. Prices low and satisfaction guaranteed. Address,

NANZ, NEUNER & CO.,
feb2 **Louisville, Ky.**

30 Greenhouses

100,000 FEET OF GLASS.

TO THE TRADE.

My Price List of Plants is now ready and will be forwarded free on application. Address,

JOHN DICK,
Helendale Nursery,
feb2 **53d and Darby Road, Philadelphia, Pa.**

NEW and RARE

Bedding Plants.

A large stock of the newer **Roses, Geraniums, Petunias, Dahlias, &c. VERBENAS a SPECIALTY.** First premiums awarded wherever exhibited. My Spring Catalogue and Wholesale Price List sent free to all applicants.

JOHN WHITE, Florist,
tfeb12 **Communapaw Ave., Jersey City. N. J.**

PREPARED

Water Proof Paper,

used by **Nurserymen** and **Florists** in mailing and packing **Plants** and for air-tight covering; also, **Impervious Paper,** used in medical and surgical practice, in place of oiled silk, and is unequalled where oiled silk is applicable, at as small cost. Sent by mail, one sheet 10 cts., ten sheets 75 cts. Prepared and sold by

F. TROWBRIDGE,
febr **Milford, Conn.**

POMONA NURSERY

MILLIONS of trees and Plants. **Capt. Jack** and **Great American,** the best Strawberries. Ten acres of *Brandywine* (Susqueco) Raspberries, yielded last summer **$4,338.** Send for Catalogue. WM. PARRY, Cinnaminson, N.J.
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Two Medals Awarded,

By the Centennial Report of Committee.

"**ROSES**—SELECT COLLECTION, containing some of the best and newest varieties in the various classes. **FINE** NEW ROSES, in good condition of growth."

"**PLANTS**—An EXHIBIT OF CHOICE, HARDY ORNAMENTAL PLANTS, of evergreen, deciduous and herbaceous kinds in fine condition of growth."

My entire exhibit was so much admired that it was sold on the spot for a very satisfactory cash price.

Send for my new Rose Catalogue.

R. BUIST,
feb1 Woodland Ave., Philadelphia.

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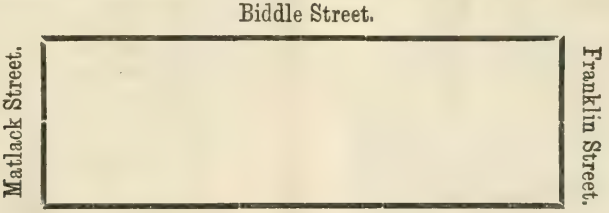
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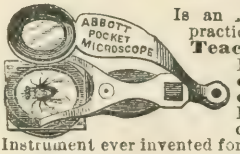
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EDITED BY THOMAS MEEHAN.

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MARCH, 1877.

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814 Chestnut Street, Philadelphia, Pa.

☞ SEE FIRST PAGE, FACING COVER

To Florists & Market Gardeners

We offer the following extract from our **Retail** and **Wholesale** lists of

SEEDS, PLANTS,

AND FLORISTS' REQUISITES.

NEW OR SCARCE FLOWER SEEDS.

Twelve packets Pansy Seeds, as shown in colored plate in the January number of *Gardener's Monthly*, per set	$1.50	**Verbena**, from our own collection, a pkt.	$ .25
Begonia, Tuberous rooted, a pkt.	1.00	**Coleus**, " " " " "	.25
Petunia, Double, "	.50	**Ivy-leaved Geranium**, " "	.25
" " **new fringed**, a pkt.	1.00	**Zonal** " "	.25
Centaurea, candida and Gymnocarpa, a pkt.	.25	**Apple-scented** " "	.25
Cineraria, New Double, a pkt.	1.00	**Balsam**, extra double white, "	.25
Primula Chenensis, " "	.75	**Climbing Fern**, "	.25
		Assorted " "	.25
		Cyclamen Persicum giganteum, "	1.00
		Primula Chenensis, single in var. "	.30

NEW VEGETABLE SEEDS.

Crawford's Half-dwarf Celery, a pkt.	.50	**Tomato, "Little Gem,"** a pkt.	.25
Henderson's Summer Cabbage, "	.50	**Cucumber, Russian Netted**, "	.25

NEW OR SCARCE PLANTS.

Carnation, "Snow White,"	each, 50 to 75c.	**Fuchsia racemosa**,	each $1 to $2
Eulalia japonica zebrina,	" $1 to $3	**Forcing Pink, "Lord Lyons,"**	" 50c
Hydrangea, "Thos. Hogg,"	" $5	**Scarlet-flowered Rose Geranium**,	each, 50c

PLANTS IN QUANTITY.

Coleus, 25 best sorts,	$ 6 per 100	**Verbenas.**	Named in 60 varieties, $3 per set,	5 per 100
Eualia japonica variegata,	12 " "	"	To special name or special color,	5 " "
Fuchsias, 12 market sorts,	6 " "	"	In twelve best market sorts,	4 " "
Geranium, "Happy Thought,"	16 " "	"	Mixed without name or color,	3 " "
Roses, monthly, 50 leading sorts, according to size, from	$6 to $25 " "			
Smilax, fine plants	$4 per 100			

VEGETABLE PLANTS.

Cold Frame Early Cabbage and Lettuce plants	$7.50 per 1000	**Linnæus Rhubarb**, roots strong,	$12.00 per 100
Early Erfut Cauliflower cold frame,	$20.00 " "		

Combined Wholesale Lists from which the above is an extract mailed **free** on application to **Florists, Market Gardeners** or **Dealers**.

Our Combined Catalogue for 1877, of **Everything** for the **GARDEN**, numbering 175 pages, with Colored Plate sent **Free** to all our customers of past years, or to purchasers of our books, either "**Gardening for Profit**," "**Practical Floriculture**," or "**Gardening for Pleasure**," (Price $1.50 each, sent free, by mail), to others on receipt of 25c.

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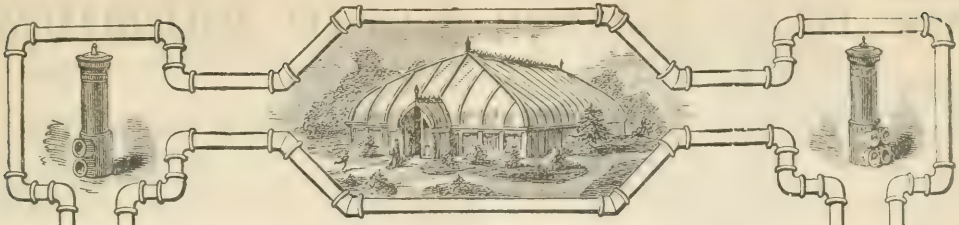
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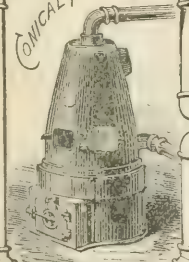


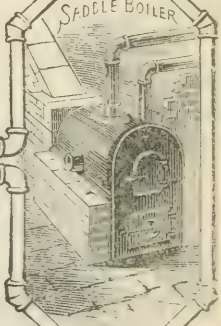
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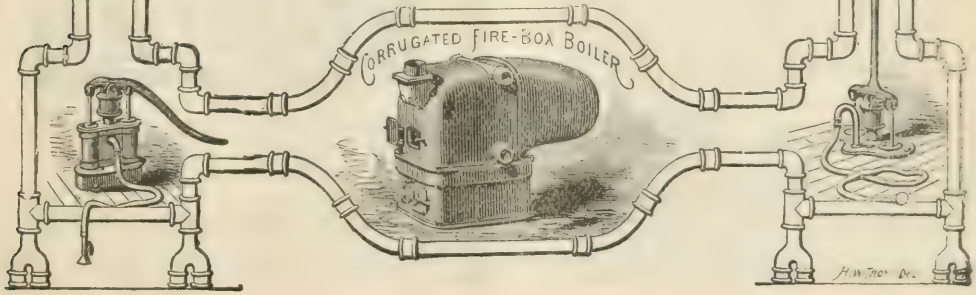
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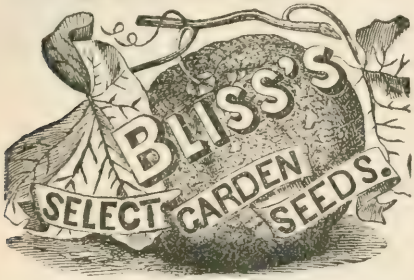
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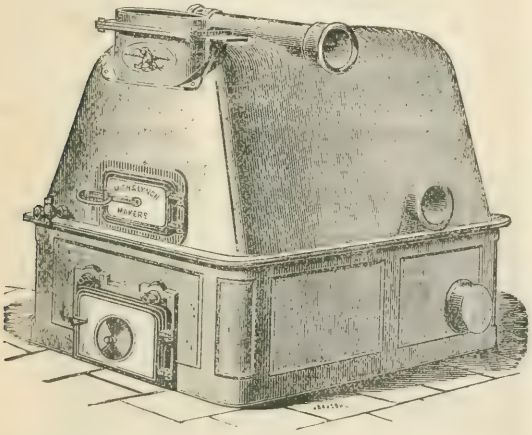
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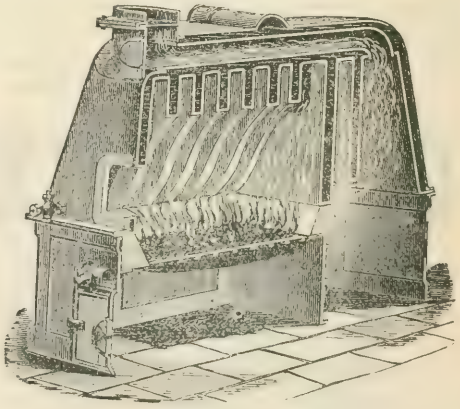
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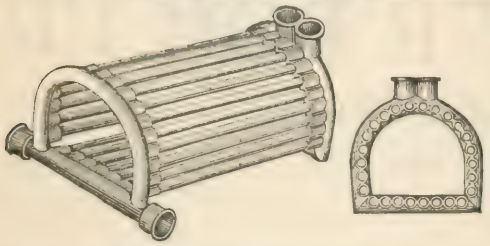
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IMPROVED HOT WATER APPARATUS,

Patented September 17, 1872.

For Warming and Ventilating Dwellings, Greenhouses, Graperies, Forcing Pits, Drying Rooms, Heating Water for Public Baths, &c.

This Boiler is perfectly self-cleaning, simple, economical and powerful, having more effective surface into less space than any Boiler in the market. **Scollay's Patent Plant Sprinkler, for Window Gardening, &c.,** to be obtained of all Seedsmen, Florists, &c. Send for Circular and References. nov.12

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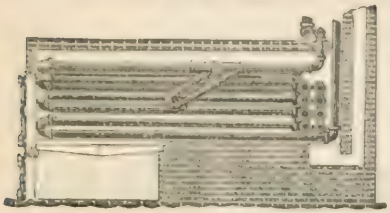
A. HENRY & C. HUGO JAQUOT,
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Jordan's Patent Wrought Iron Water Heater.

A NEW PRINCIPLE.

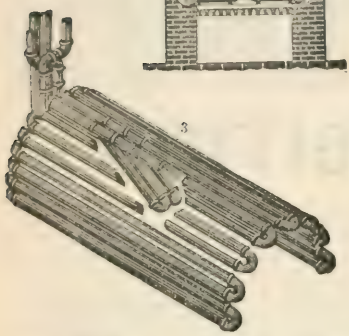
The boilers are constructed of horizontal pipes of the same inside diameter as those that form the heating pipes, thereby producing a very rapid circulation of the water.

LENGTH SEVEN FEET.





2



3

DESCRIPTION.

No. 1 shows a side view of one-half section, with U steam propeller. Also shows sections of chimney, ash-pit, and brick arch around the boiler, with downward draft to chimney.

No. 2 shows end view, with rear end closed with pipes; ash-pit below and brick arch above.

No. 3 shows boiler before it is set in the brick, with a few pipes broken away, to show the steam generator.

The improvements claimed are: a larger heating surface, as compared to the amount of water in the boiler; a more rapid circulation of water by the use of steam generator to move the water; a larger fire-hole, so that soft coal can be used and not obstruct the draft; and cheapness.

Extracts from the Patent, No. 173,300, Dated February 8th, 1876.

By making the pipes throughout the whole length of the boiler and heater of the same interior diameter there is an even flow through the pipe at all parts, and no shoulders in the pipe to cause any check to the flow.

It is obvious that the boiler-pipes being exactly the same interior size as the radiator and connecting-pipes, a new and quite valuable result is obtained, as the simultaneous movement of the water is insured through the whole series of pipes at the same speed, thus preventing any eddy and dead water.

The U-formed steam water propeller, by descending into the furnace and entering the water-pipe at an inclination, causes a circulation in the water-pipes almost immediately the fire is lighted, and before the water has time to become heated in the water-pipes. The end bends of the water-pipes, which close partially the back of the fire-space, receive the full blast of the products of consumption.

TRUTHS TO BE CONSIDERED.

If water moves rapidly into and out of the furnace it must carry off the heat rapidly into the room to be heated, thereby saving the fuel. The front is of iron and can be easily removed to clean out dust, &c.

SETTING THE BOILER.

Build foundation wall 12 inches wide, so the pipes will set about 1½ inches inside the walls, and 3 inches above the grate bars; let the boiler rest on one fire brick at front and one at rear. Let the rear bridge wall for the grate bars be heavy and raise above the grate bars about 10 inches to one foot, and of fire brick. The Chimney should be started from the bottom of the furnace, and be at least 25 feet high, and an opening at least one foot sqare.

PRICE OF BOILERS (OF WROUGHT IRON, WITH IRON FRONT AND GRATE BARS.)

Small boilers without grate bars or iron front				$25 to $50 each.	No. 4 to heat	1900 to 2000	feet of pipe	$175.00 each
No. 1 to heat	500 to	750	feet of pipe	$ 75 00 "	" 5 " "	2000 " 3000	" " "	225.00 "
" 2 "	750 "	1000	" " "	100.00 "	" 6 " "	3000 " 5000	" " "	300.00 "
" 3 "	1000 "	1500	" " "	125.00 "	Valves for 4 inch pipe			10.00 "

Large boilers made to order. Where no iron front or grate bars are wanted, 10 per cent. deducted.

Water-pipe and all kinds of fittings at present 30 per cent. off the card prices.

Men furnished to put up the furnace and contracts taken to heat any building, and can be placed where hot air furnace has been used.

We have had seventeen years experience in handling water heaters, and can guarantee our work.

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AND

BEAUTIFUL PLANTS,

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BEAUTY OF GLAZENWOOD.

A HYBRID TEA, one of a most distinct and novel kind. The ground tint is a lovely golden yellow, darker than, but after the style of, Madame Falcot, each petal being distinctly striped, and flaked with a bright carmine, as often seen in the coloration of some Tulips, the buds, before expanding, being boldly and beautifully marked with crimson. It is impossible to convey by description the marking and beauty of this charming Rose; but it is, without doubt, the most striking novelty introduced for years.

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An immense stock of all the standard varieties grown in pots. CHEAP.

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Abutilon "Boule de neige," pure white, free blooming	1 00	
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(Special rates per 1000.)		
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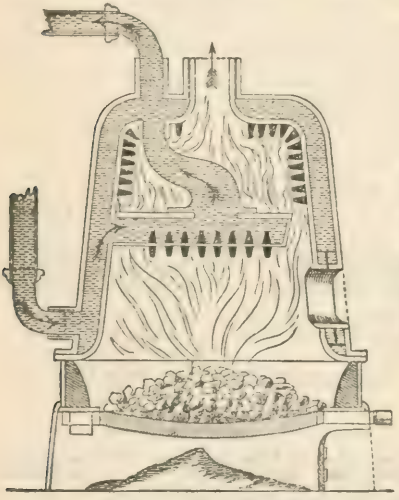
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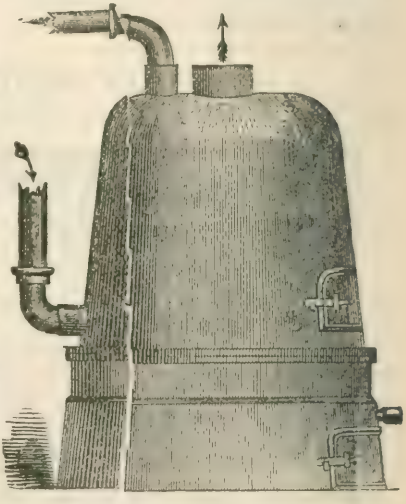
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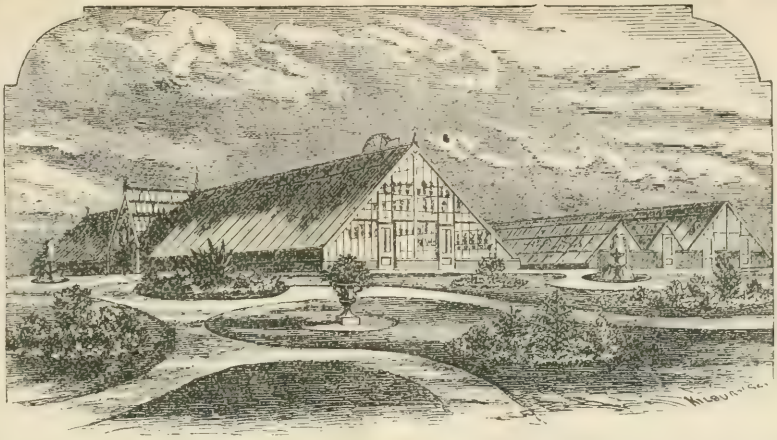
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New Dwarf free-blooming Abutilons in variety. **New Tuberous rooted Begonias, Carnation Wellesley Beauty, Bronze and Gold Bedding Zonale Pelargonium EARL ROSLYN**, which proved during the last unusually dry summer the **best of its class**, the brilliancy and distinct outlines of its colors increasing with the intensity of the sun-light, and appearing to be more fully developed thereby. Of this superb variety we hold the largest stock in the United States, and offer it at very moderate price for so choice a novelty.

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Bon Silene, Safrano, Isabella Sprunt, Marechal Neil, General Jacquimenot, and other Rose Buds; together with Carnations, Violets, Smilax and Ferns, shipped to all the New England, Middle and Western States, and Canada.

OUR METHOD OF PACKING enables us to guarantee their safe arrival in Summer and Winter. We make the growth of **Roses** for their **Buds** a specialty, and by studious observation in our practical experience we have been enabled to perfect ourselves in their growth, forcing and management, so as to produce flowers with long stems, covered with fine clean foliage, with buds of superior color and texture. We furnished the leading florists of Boston, New York, and Philadelphia, during the recent olidays, with the greater part of all the Marechal Neil Roses used by them

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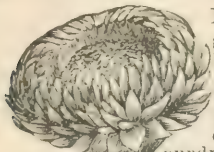
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40,000 Irish Juniper, 4 inches to 6 feet.
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5,000 " " 8 to 10 feet.
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150,000 Wilson's Albany Strawberry.
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4,000 Early Richmond Cherry, 2 years, No. 1.
3,000 " " " 1 year, No. 1.
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	Doz	100	1000
Very superior in quality.			
First Quality Large Flowering Bulbs. -	.75	$4	$35
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A few hundred Extra Large Bulbs, -	1.00	5	

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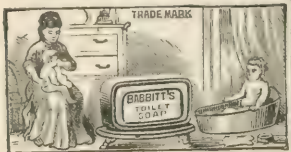
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A roof may be covered with a very cheap shingle, and by application of this slate be made to last from 20 to 25 years. Old roofs can be patched and coated, looking much better and lasting longer than new shingles without the slate, for

One-third the Cost of Re-shingling.

The expense of slating new shingles is only about the cost of simply laying them. The paint is FIRE-PROOF against sparks or flying embers, as may be easily tested by any one.

IT STOPS EVERY LEAK,

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This Slate Paint is

EXTREMELY CHEAP.

Two gallons will cover a nundred square feet of shingle roof, while on tin, iron, felt, matched boards, or any smooth surface, from two quarts to one gallon are required to 100 square feet of surface, and although the paint has a heavy body it is easily applied with a brush.

No Tar is used in this Composition,

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On decayed shingles, it fills up the holes and pores, and gives a new substantial roof that will last for years. CURLED OR WARPED shingles it brings to their places, and keeps them there. It fills up all holes in felt roofs, stops the leaks—and although a slow dryer, rain does not affect it a few hours after applying. As nearly all paints that are black contain TAR, be sure you obtain our genuine article, which (for shingle roofs) is

CHOCOLATE COLOR,

when first applied, changing in about a month to a uniform slate color, and is, to all intents and purposes SLATE. On

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1 Gallon, can and box			$1 50
2	"	"	2 35
5	"	"	5 50
10	"	keg	9 50
20	"	half barrel	16 00
40	"	one barrel	30 00
10 lbs., cement for bad leaks			1 25

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1000 Bbls Slate Flour		per bbl.	$3 00
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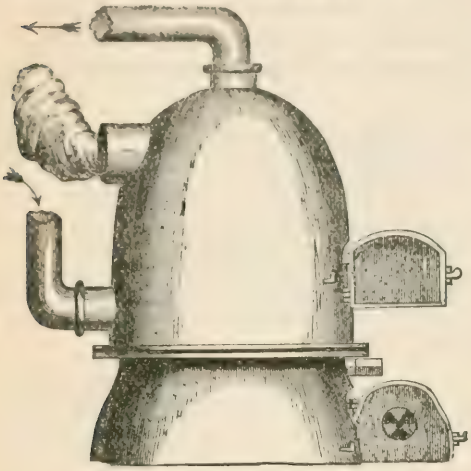


Fig. 1.

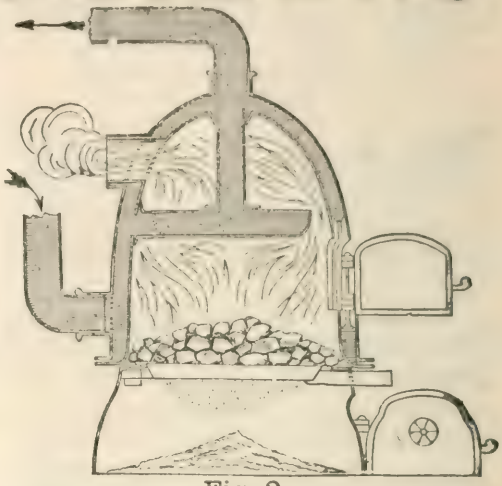


Fig. 2.

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Large Ornamental Trees, Shrubs, Roses, &c., also manufacturer of Beecroft's Wheel-Hoe and Hand-Weeder, which are death to weeds without hard work. Everybody likes them that have given them a trial. Wholesale and Descriptive Catalogues mailed free.

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Digging and Packing done in the best possible manner. No pains will be spared to insure satisfaction. Correspondence solicited. Please address,

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The Gardener's Monthly.

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tfeb6

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EXTRA STRONG PLANTS,
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1000 Prime Roses and Cinerarias,

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One year, 4 to 6 ft. **stocky, general assortment. NORWAY, SUGAR** and **SILVER MAPLES,** all sizes. **APRICOTS,** one and two years. **CHERRY,** two years, 5 to 9 ft. **RED DUTCH CURRANTS, ARBORVITÆS, AMERICAN, SIBERIAN,** and **HOVEY'S GOLDEN,** all sizes. **IRISH JUNIPERS,** 1 to 5 ft. **HEMLOCKS,** bushy, 2 ft. stock of best quality, and offered low.

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January 1st, 1877.

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100,000 FEET OF GLASS.

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My Price List of Plants is now ready and will be forwarded free on application. Address,

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BY a German Gardener, single, in a private or commercial establishment; 7 years' experience, five in Germany, and three in the United States; is thoroughly competent in Flower gardening, Propagating, &c.; has good references, which he begs to have an opportunity to submit. Address JOHN WASATKO, 914 Randolph St., Philadelphia.

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This indicator of atmospheric moisture is as accurate as the costly ones. Rooms heated by furnaces or stoves are almost invariably so dry as to be damaging not only to health but to furniture. Some people take the consequences others keep water on the heater. The Hygroscope shows at a glance whether the air is too dry or not.

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EYE OF A FLY,

or other insect of like size, can be readily seen. It is simple in construction and easy to operate. One of these interesting Instruments ought to be in every family. We have made arrangements to furnish the **Pocket Microscope** at the manufacturer's price, $1.50. It will be sent, postpaid, to any reader of this Paper desiring it, on receipt of price, or may be had at this office.

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of 1877.

A reference book of the Nurserymen, Florists, Seedsmen, Tree Dealers, &c., for the United States. Alphabetically arranged by States and Post Offices. 310 pages, 8vo. Price $10.00 Mailed, post paid, on receipt of price.

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ADVERTISING AGENTS,
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This brief sketch will suffice to show that from a very small beginning **our agency** *has rapidly grown* to be one of **the largest** of its kind **in the COUNTRY.**

Our entire business is thoroughly systematized, and our facilities for its transaction are unsurpassed. We keep the leading papers of the country constantly on file; and our special contracts with them are so numerous and favorable that we can offer the very lowest prices for advertising, and to responsible parties the most advantageous terms of settlement. *We have no canvassers' commissions to pay*, but employ our men entirely on salary, giving at once to the advertiser all the discount that can be afforded. We are at all times pleased to furnish promptly and without charge, estimates showing the cost of advertising in any paper or list of papers, and guarantee the strict fulfillment of all orders entrusted to our care. *It costs nothing to get our figures*; and it will pay every advertiser to do so before contracting for any newspaper advertising.

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For Advertisers, an elegantly printed book of **128** royal octavo pages, is sent postpaid, upon application, to all who contemplate advertising. It contains carefully prepared lists of leading daily, weekly, and monthly newspapers in the United States and Canada, with valuable information regarding circulation and advertising rates, so arranged and classified as to enable an advertiser to select without difficulty the mediums best suited to any particular purpose. It tells how, when, and where to advertise wisely and cheaply, and will enable you to secure the largest amount of advertising for the least amount of money. **Send for it.** We also publish

THE ADVERTISER'S GUIDE.

A Quarterly Magazine, devoted to the Interests of Advertisers and Newspaper Publishers. Fifty Cents per Year, postpaid.

Each number is well filled with interesting and instructive reading matter, together with valuable information regarding newspapers. Our aim is to disseminate a more general knowledge of newspaper advertising and the advantages to be gained by it. We therefore make the following offer: to all persons advertising through this agency to the amount of **FIVE DOLLARS,** we will send the Advertiser's Guide, postpaid, without further charge.

OUR PRINTING OFFICE.

We have our own printing-office, well filled with type peculiarly adapted to the proper display of advertisements, and keep three men employed exclusively on the work arising from our advertising business. We are thus enabled to furnish, without expense to the advertiser, a proof showing just how the copy desired will look in type. Our compositors having for years made this branch of type-setting a study, know how to reduce an advertisement into the smallest compass consistent with its proper display, and thus enable us to secure to an advertiser the largest amount of publicity in the best possible [illegible] and strength only for the smallest expenditure of money. All these and many other matters we consider matters of course to those who avail themselves of our unsurpassed facilities, and shall be glad to correspond with all who contemplate the expenditure of any money in newspaper advertising.

Our offices are at all times open for inspection, and we take pleasure in showing their inside workings to any who may call. In conclusion allow us to ask that you

GET OUR ESTIMATE BEFORE MAKING ANY ADVERTISING CONTRACTS.

N. W. Ayer and Son

ADVERTISING AGENTS,

Times Building, Chestnut and Eighth Streets, Philadelphia.

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ALPHABETICALLY ARRANGED.

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" Farmer	1 35
" Artisan	1 60
" Builder	2 60
" Naturalist	3 25
" Odd Fellow	1 60
Appleton's Journal	2 50
Arthur's Home Magazine	2 35
Atlantic Monthly	3 45
Boston Cultivator	2 60
Building Association Journal	75
" Societies Gazette, London, England	1 35
Bucks County Intelligencer, old Subscribers $2 60, new	2 10
California Horticulturist	2 75
Central Union Agriculturist and Chromo	1 70
Children's Friend	1 35
" Hour	1 10
Colman's Rural World	1 85
Country Gentleman	2 10
Demorest's Magazine	2 60
Eclectic Magazine	4 60
Every Saturday	4 60
Farmer's Home Journal	2 60
Frank Leslie's Ladies' Magazine	3 10
" Review	2 10
Galaxy	3 45
Germantown Telegraph, old subscribers $2 50, new	2 20
Godey's Lady's Book	2 25
Graphic, (Daily), per year	9 50
Hall's Journal of Health	1 50
Harper's Bazar	3 45
" Magazine	3 45
" Weekly	3 45
Hearth and Home	2 00
Herald of Health	1 60
Household	85
Iowa Homestead	1 60
Journal of Chemistry	1 10
" of the Farm	85
Journal of Materia Medica	1 10
Kansas Farmer	1 35
Lady's Floral Cabinet, with Chromo	1 10
Ladies' Repository	3 35
Leslie's Lady's Journal	3 60
Lippincott's Magazine	3 25
Littell's Living Age	7 60
London Garden	8 75
London Gardener's Chronicle	7 50
Maine Farmer	$2 10
Manufacturer and Builder	1 85
Maryland Farmer	1 35
Massachusetts Ploughman	2 60
Metropolitan	1 85
Milling Journal	1 85
Moore's Rural New Yorker	2 35
Nation	4 75
National Baptist	2 35
New England Farmer	2 35
" " Homestead	2 10
New York Evangelist	2 60
New York Methodist	2 20
" " Post, Weekly, $1.50; Semi-Weekly	2 60
" " Times, Weekly, $1.50; Semi-Weekly	2 60
" " Tribune, Weekly, $1.50; Semi-Weekly	2 60
" " World, Weekly; $1-50; Semi-Weekly	2 60
North-Western Farmer	1 10
Nursery	1 20
Ohio Farmer	1 85
Old and New	3 60
Our Home Journal	2 25
Park's Floral Gazette	70
Penn Monthly	2 10
Peter's Musical Monthly	2 60
Peterson's Magazine	1 70
Philadelphia Weekly Press	1 60
Phrenological Journal	2 35
Poultry World	1 10
Popular Science Monthly	4 60
Practical Farmer, (Weekly)	1 60
Prairie Farmer	1 60
Purdy's Small Fruit Recorder	85
Saint Nicholas	2 60
Saturday Evening Post	1 75
Scientific American	2 75
Scientific Farmer	85
Scribner's Monthly	3 45
Southern Cultivator	1 85
Southern Planter and Farmer	1 85
Waverly Magazine	4 60
Western Agriculturist	85
Western Farmer	1 85
" Rural	1 85
Wood's Household Magazine	85
" " " with Chromo	1 00
Working Farmer	1 10
Youth's Companion..new subscribers $1.40; old subscribers..	1 75

The above includes postage under the new U. S. Law requiring prepayment of postage before mailing.

After subscription to a club paper through this agency, report non-receipt of your numbers and other causes of dissatisfaction, irregularities of mails or changes of residences, *only to said paper direct* (*not* to this office).

Remit by P. O. Order, Draft or Registered Letter. Currency is at risk of mails.

If you wish a receipt or reply, enclose postage stamp for that purpose, otherwise the club papers will be considered a sufficient receipt.

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RURAL AND PRACTICAL BOOKS, (and any others in the market not on this list) will be sent by mail, post paid, on receipt of price. Address CHAS. H. MAROT, 814 Chestnut St., Philada.

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Allen's, L. F., Rural Architecture	1 60
Allen's, L. F., American Cattle	2 50
Allen's, R. L. & L. F., New American Farm Book	2 50
American Architect	7 00
American Bird Fancier, (Brown's)	30
American Farmer's Encyclopedia	6 00
American Weeds and Useful Plants	1 75
Apple Culturist, S. E. Todd	1 50
Art of Saw Filing	75
Architecture, Modern American, Cummings & Miller	10 00
" Principles and Practice of, By Loring & Jenning	12 00
Baker's Fruit Culture	4 00
Bassett on Cranberry Culture	30
Barry's Fruit Garden	2 50
Bell's Carpentry made easy	5 00
Bement's Poulterer's Companion	2 00
Bement's Rabbit Fancier	30
Beet Root Sugar	1 50
Bicknell's Village Builder, 77 plates	12 00
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Boussingault's, J. B., Rural Economy	1 60
Browne's Trees of America	6 00
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EDITED BY THOMAS MEEHAN.

Vol. XIX. No. 220.
(Combined Magazines, Thirty-second Year.)
APRIL, 1877.

PUBLISHED BY CHARLES H. MAROT,
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AND HORTICULTURIST.

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		Assorted " "	.25
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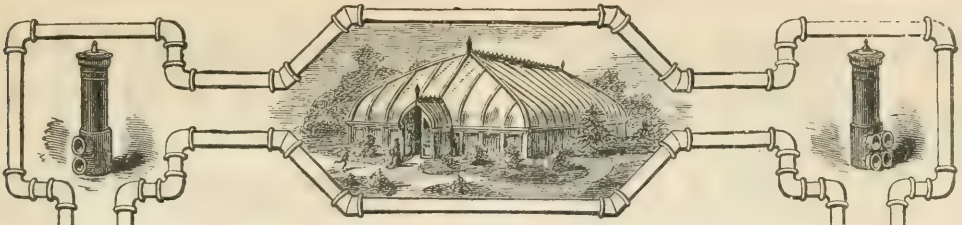
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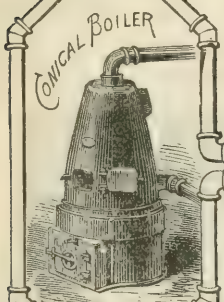


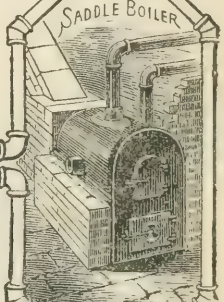
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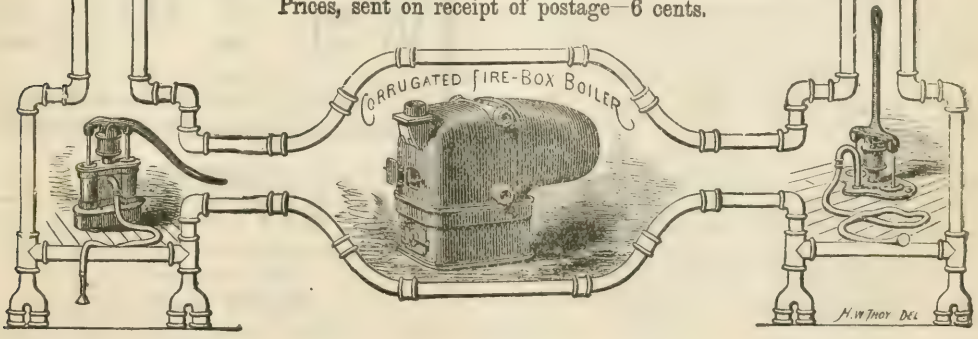
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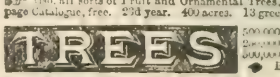
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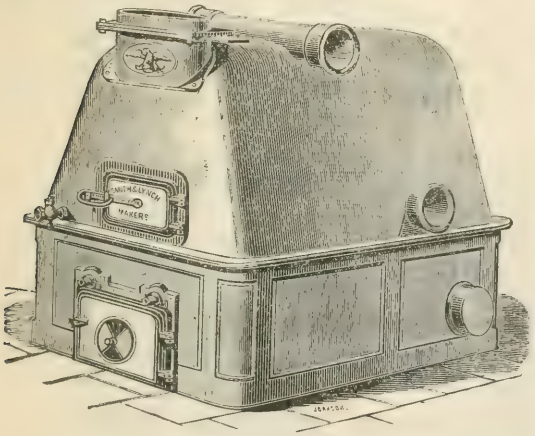
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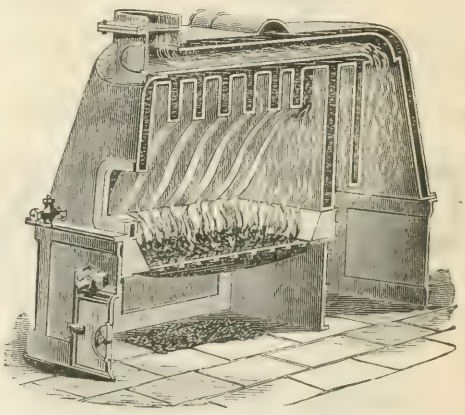
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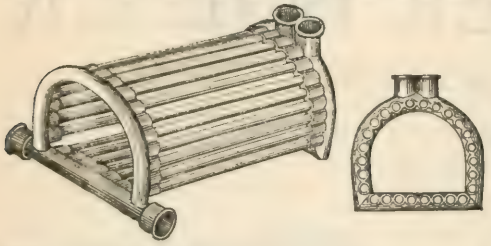
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Of prime quality and very cheap. Special rates by the 10,000 and upwards. A full assortment of HEDGE PLANTS. For Price-lists, address

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Manufacturer of **Plain** and **Fancy Wire-work**, for **Florists**; Wreaths, Crosses, Stars, Crowns, Hearts, Anchors, Birds, Lambs, Gipsy Baskets, Hanging Baskets, Flower Stands, &c.

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Plants, Trees, Shrubs.

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NYMPHIA ODORATA. Strong roots of this fragrant Lily, for planting in ponds or tubs, with printed instructions for growing, 25 cents each; $2 per doz, free by mail.
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Carnations, Lilies, Violets, Bouvardia, Lily of the Valley, Heliotrope, &c.

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THE NEW
Japanese White Flowering
HYDRANGEA,
"THOMAS HOGG."

We have great pleasure in announcing to the Horticultural world, that the distribution of this fine plant, the most superb novelty in plants ever introduced into this country, will commence on **October 1st, 1876.** It has received the unqualified admiration of all American and European Florists and Nurserymen who have seen it in flower.

Orders will be received at the following rates :

One Large Flowering Plant, $5.	**Second Size, $3.**	**Where 12 plants are taken**		**3 additional sent.**	
		" 25	" "	7 "	"
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		" 100	" "	30 "	"

Small plants struck last September, $12 per dozen, $80 per hundred.

This, the finest of all Hydrangeias, was sent to the United States by Mr. THOMAS HOGG, from Japan It has been exhibited in flower at the Massachusetts Horticultural Society weekly meeting in Boston, where it took the Society's silver medal for new plants ; and also, at the New York Horticultural Society's monthly meeting in May. In the reporf of that meeting to the "American Agriculturist," by Mr. Peter Henderson, he says :—"We think it safe to say, that no ornamental plant ever introduced exceeds this in value."

It belongs to the Hortensia section of the family, but is a far more free and abundant bloomer than any other.

I have a fine lot of **Hydrangea paniculata grandiflora**, 2 year strong flowering plants. 25c. per 100, $2 per 1000 ; 2d size, per 100, 15c.

All orders must be sent to **JOHN CADNESS,** FLUSHING, L. I., N. Y.

Cash must accompany the order, and all remittances by Draft or Post Office Order, or Bank Cheque, as we cannot be responsible for the safety of greenbacks by mail.

JOHN CADNESS.

Flushing, Long Island, N. Y., April 1st, 1877. toct12



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Their Construction a Specialty. Experience of 20 Years.

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BOTH SEEDLINGS AND TRANSPLANTED TREES.

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EUROPEAN LARCH AND EVERGREEN TREE SEEDS,

by the ounce, pound and 100 pounds. Send for Catalogue.

ROBERT DOUGLAS & SONS,

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Dealers in all kinds of **Standard** and **Dwarf Fruit Trees, Grape Vines, Small Fruits, Shrubs, Roses, Ornamental Trees, Greenhouse** and **Bedding Plants.** Trees packed in the best of order. Correspondence solicited.

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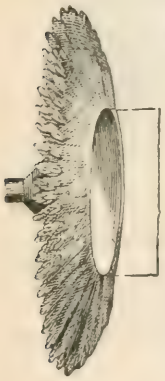


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NEW ROSES of 1876. Abel Carriere, Duchesse de Vallambrosa, Dingee Conard, Mad. F. Jamin, Mad. P. Langier Miss Hassard, Rev J. B. M. Camm, &c., &c. **Prices low.**

NEW GERANIUMS of 1877. Lemoines, Alegatiere's and those of other Continental raisers—new styles, new colors, great improvements.

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New, Rare and Beautiful Plants

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We are now prepared to fill orders to the trade from choice, healthy, young stock of 50 varieties Cactus; 100 varieties Begonias; 10 new varieties Coleus; 5 new varieties Oleanders; 10 varieties new Hybiscus; also Caladiums, Aloes, Agaves, Yuccas, Young Palms and Dracænas, Choice Ever-blooming Roses, hardy flowering Shrubs and Ornamental Vines. Send for Price List and Catalogue. Address

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FOR WARMING Dwellings, Greenhouses, Graperies, Forcing Pits, Drying Rooms Heating Water for Public Baths, Baptisteries, &c., by Hot Water or by Steam.

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Corrugated Heating Pipe and Boiler for Greenhouse Heating,

JOHN G. WILSON, 71 Centre St., N. Y. City.

Report on Awards:—The undersigned, having examined the product herein described, respectfully recommends the same to the United States Centennial Commission for Award, for the following reasons, viz:—

The Corrugated Pipe, extending the radiating surface causes the heat to be radiated at a lower temperature, an important point in all artificially heated atmospheres, either for plant or animal life. A Boiler, upright cylinder, with coil in fire chamber, large fire surface, and compact in size: therefore economical for a Boiler of its class.

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FRANCIS A. WALKER, Chief of Bureau of Awards.

Given by authority of the U. S. Centennial Commission,

A. T. GOSHORN, Director General.
J. R. HAWLEY, Preisdent.
J. L. CAMPBELL, Secretary.

tapl3

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IMPROVED HOT WATER APPARATUS,

Patented September 17, 1872.

For Warming and Ventilating Dwellings, Greenhouses, Graperies, Forcing Pits, Drying Rooms, Heating Water for Public Baths, &c.

This Boiler is perfectly self-cleaning, simple, economical and powerful, having more effective surface into less space than any Boiler the market. **Scollay's Patent Plant Sprinkler, for Window Gardening, &c.,** to be obtained of all Seedsmen, Florists, &c. Send for Circular and References. nov.12

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Greenhouse Plants, Roses, Tuberoses, and a great collection of Bedding Plants. Address,

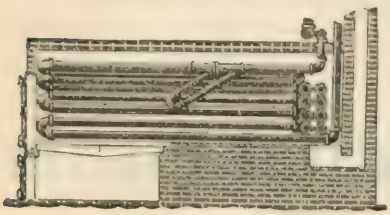
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Jordan's Patent Wrought Iron Water Heater.

A NEW PRINCIPLE.

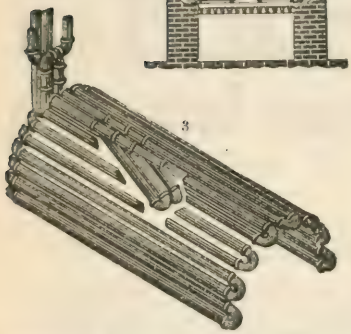
The boilers are constructed of horizontal pipes of the same inside diameter as those that form the heating pipes, thereby producing a very rapid circulation of the water.

LENGTH SEVEN FEET.



2





3

DESCRIPTION.

No. 1 shows a side view of one-half section, with U steam propeller. Also shows sections of chimney, ash-pit, and brick arch around the boiler, with downward draft to chimney.

No. 2 shows end view, with rear end closed with pipes; ash-pit below and brick arch above.

No. 3 shows boiler before it is set in the brick, with a few pipes broken away, to show the steam generator.

The improvements claimed are: a larger heating surface, as compared to the amount of water in the boiler; a more rapid circulation of water by the use of steam generator to move the water; a larger fire-hole, so that soft coal can be used and not obstruct the draft; and cheapness.

Extracts from the Patent, No. 173,300, Dated February 8th, 1876.

By making the pipes throughout the whole length of the boiler and heater of the same interior diameter there is an even flow through the pipe at all parts, and no shoulders in the pipe to cause any check to the flow.

It is obvious that the boiler-pipes being exactly the same interior size as the radiator and connecting-pipes, a new and quite valuable result is obtained, as the simultaneous movement of the water is insured through the whole series of pipes at the same speed, thus preventing any eddy and dead water.

The U-formed steam water propeller, by descending into the furnace and entering the water-pipe at an inclination, causes a circulation in the water-pipes almost immediately the fire is lighted, and before the water has time to become heated in the water-pipes. The end bends of the water-pipes, which close partially the back of the fire-space, receive the full blast of the products of consumption.

TRUTHS TO BE CONSIDERED.

If water moves rapidly into and out of the furnace it must carry off the heat rapidly into the room to be heated, thereby saving the fuel. The front is of iron and can be easily removed to clean out dust, &c.

SETTING THE BOILER.

Build foundation wall 12 inches wide, so the pipes will set about 1½ inches inside the walls, and 3 inches above the grate bars; let the boiler rest on one fire brick at front and one at rear. Let the rear bridge wall for the grate bars be heavy and raise above the grate bars about 10 inches to one foot, and of fire brick. The Chimney should be started from the bottom of the furnace, and be at least 25 feet high, and an opening at least one foot sqare.

PRICE OF BOILERS (OF WROUGHT IRON, WITH IRON FRONT AND GRATE BARS.)

Small boilers without grate bars or iron front,... $25 to $50 each.	No. 4 to heat 1900 to 2000 feet of pipe.....$175.00 each
No. 1 to heat 500 to 750 feet of pipe.....$ 75 00 "	" 5 " " 2000 " 3000 " " " ..... 225.00 "
" 2 " 750 " 1000 " " " ..... 100.00 "	" 6 " " 3000 " 5000 " " " ..... 300.00 "
" 3 " 1000 " 1500 " " " ..... 125.00 "	Valves for 4 inch pipe..... 10.00 "

Large boilers made to order. Where no iron front or grate bars are wanted, 10 per cent. deducted.

Water-pipe and all kinds of fittings at present 30 per cent. off the card prices.

Men furnished to put up the furnace and contracts taken to heat any building, and can be placed where hot air furnace has been used.

We have had seventeen years experience in handling water heaters, and can guarantee our work.

JORDAN & BRO.,

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JOHN SAUL'S

Catalogue of New, Rare

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BEAUTIFUL PLANTS,

will be ready in February with a colored plate of the

NEW STRIPED ROSE,

BEAUTY OF GLAZENWOOD.

A HYBRID TEA, one of a most distinct and novel kind. The ground tint is a lovely golden yellow, darker than, but after the style of, Madame Falcot, each petal being distinctly striped, and flaked with a bright carmine, as often seen in the coloration of some Tulips, the buds, before expanding, being boldly and beautifully marked with crimson. It is impossible to convey by description the marking and beauty of this charming Rose; but it is, without doubt, the most striking novelty introduced for years.

"A Rose of golden-yellow, striped and flaked with scarlet or vermlion sounds like a dream or a fairy tale; it is, nevertheless, a reality."—H. CURTIS, in THE GARDEN.

New Roses—The finest new French and English Varieties.
New Double Poinsettia—A superb plant.
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With an immense stock of **new** and **beautiful** plants well grown —all of which are offered at low rates.
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ROSES.

An immense stock of all the standard varieties grown in pots. CHEAP.

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New Pears, Peaches, Strawberries, &c.

New Shrubs and Ornamental Trees, with a large general Nursery Stock—Fruit Trees, Evergreens, &c., Norway Spruce, Austrian Pine, Silver Fir, and other Small Evergreens, Fruit Tree Stocks, &c,. suitable for Nurserymen.

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Plants for Massing, Ribbon Borders, &c., &c. Alternantheras, Æcheverias, Centaureas, Glaucum, Golden Feather, &c., &c.

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GERANIUMS, Gen'l Grant, and assorted.

CAMELLIA STOCKS, for Grafting.

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And a general assortment of Nursery Stock. Prices moderate. Send for trade-list.

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YOU WANT A "LADY"

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Grown at the Germantown Nurseries. And those who need but A FEW ARTICLES, will find all ages and sizes to select from.

A special feature of the business, is the raising of

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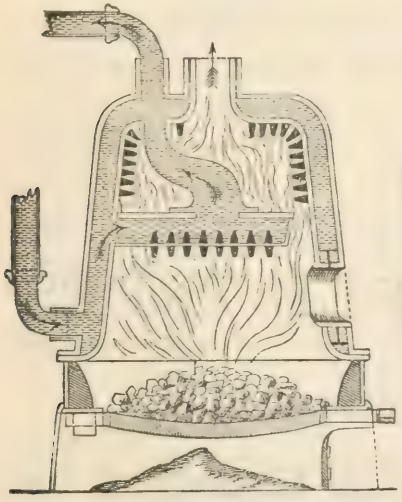
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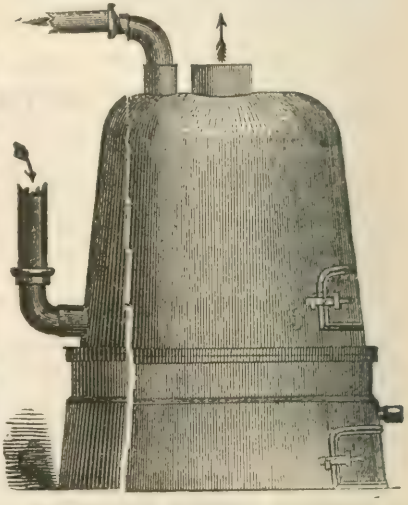
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Proper steps have been taken to secure United States Letters Patent on this Invention.

All the necessary Fittings for Hot Water Heating Apparatus.
VENTILATION APPARATUS OF ALL KINDS.



Wells Drove, Pumps of all kinds, Hydraulic Rams, &c., Garden Sun-Dials.

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Hy. Perp. and Noisettes, $3.00 per doz., $20.00 per 100
Teas and China, 2.50 " " 18.00 " "

We can also supply all the NEW and BEST VARIETIES of

Hardy Ornamental Trees and Shrubs, Evergreen and Deciduous,
For planting in Lawns, Yards, &c.

ROSE and PLANT CATALOGUES sent on receipt of 3ct postage stamp.

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Vases, Fancy Flower Pots, Hanging Baskets, &c.,

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Raspberry Plants
IN LARGE SUPPLY.

BRANDYWINE, true, PHILADELPHIA, HIGHLAND HARDY, BRINKLE'S ORANGE, BLACK CAP Varieties, &c., &c. DELAWARE, GANARGUA, THWACK, CUTHBERT and other NEW sorts. A Descriptive Catalogue mailed to all applicants

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apl2 WOOLSON & CO., Passaic, N. J.

A FIFTY-PAGE CATALOGUE.
WHAT and HOW to PLANT;

describing all the valuable new early and late PEACHES, and new long-keeping Winter Apples, Pears, Quinces, Grapes, Small Fruits, Evergreens, Ornamental Trees and Shrubbery. A large stock of all items usually found in a FIRST-CLASS NURSERY, all of which will be sold for less than half the usual retail price. Catalogue mailed gratis to all applicants

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RANDOLPH PETERS,
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100,000 No. 1 and No. 2 Peaches, Choice Kind.
40,000 Irish Juniper, 4 inches to 6 feet.
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10,000 Carolina Poplar, 4 to 5 feet.
5,000 " " 8 to 10 feet.
10,000 Silver Maple, 8 to 10 feet.
100,000 Brandywine Raspberry.
150,000 Wilson's Albany Strawberry.
300,000 Conover's Colossal Asparagus, 2 years.
4,000 Early Richmond Cherry, 2 years, No. 1.
3,000 " " " 1 year, No. 1.
150,000 No. 1 Osage Orange, extra large.

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SMALL FRUIT PLANTS.

Strawberries, Raspberries, Blackberries, Currants, Grapes, Asparagus Roots, &c. Prices low. Send for Circular.

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A New Raspberry,
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Salvia Marmorata Nana.

This valuable plant was raised by HENRY PEISTER. It is very remarkable for its dwarfness and compact growth, not growing any higher than 14 inches; and its unusually free flowering habit. It produces when quite young, spikes of the most brilliant marmorated flowers of white and scarlet, comes perfectly true from cuttings, and will prove one of our best bedding and market plants.

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	Doz	100	1000
Very superior in quality.			
First Quality Large Flowering Bulbs. -	.75	$4	$35
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A few hundred **Extra** Large Bulbs, -	1.00	5	

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2	"	"	2 35
5	"	"	5 50
10	"	keg	9 50
20	"	half barrel	16 00
40	"	one barrel	30 00
10 lbs., cement for bad leaks			1 25

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2000 rolls 2-ply Tarred Roofing Felt, at 1¾ cents per square foot.

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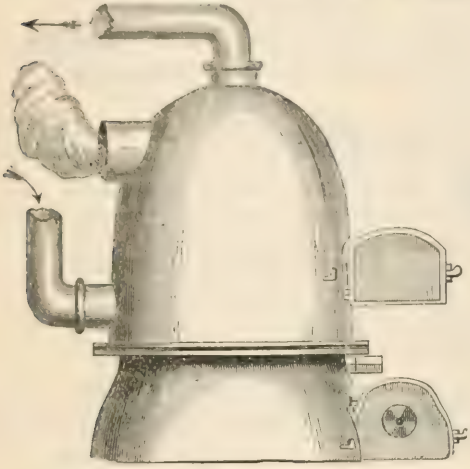


Fig. 1.

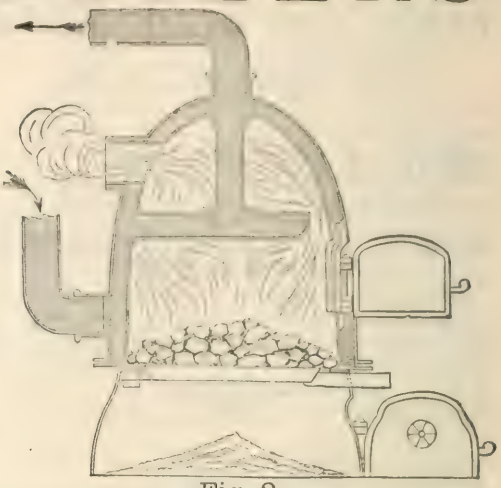


Fig. 2.

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Fig. 1 is an outside view. **Fig. 2** is a vertical section through the centre.

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PALMS,
DRACÆNAS, CROTONS
AND OTHER
Ornamental Foliage Plants,
WELL ADAPTED FOR
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New Double Poinsettia, 75 c to $1 each, according to size.
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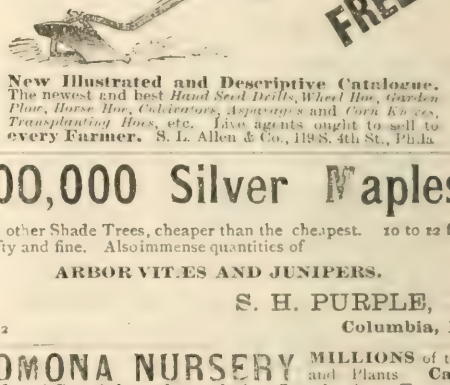
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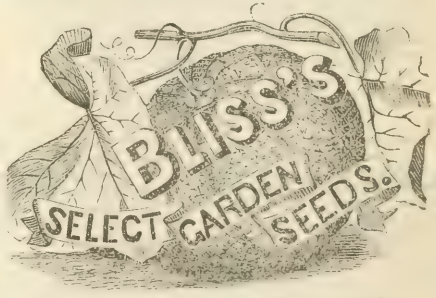
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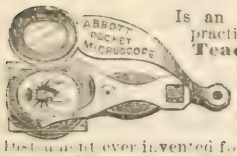
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LAKE CROSSING, MASS.

SPRING—1877.

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THE GARDENERS MONTHLY And HORTICULTURIST

EDITED BY THOMAS MEEHAN.

Vol. XIX. No. 221.
(Combined Magazines, Thirty-second Year.)

MAY, 1877.

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THE GARDENER'S MONTHLY
AND HORTICULTURIST.

EDITED BY THOMAS MEEHAN,

Assisted by an able Corps of AMERICAN and FOREIGN CORRESPONDENTS.

It is published on the first of every month, at the office, No. 814 CHESTNUT STREET, PHILADELPHIA, where all BUSINESS communications should be addressed.

Communications for the Editor should be addressed: THOMAS MEEHAN, GERMANTOWN, Philada.

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BETWEEN CHURCH AND GREENWICH STS.

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Agents for AUG. VAN GEERT, Ghent;—Horticulturist,
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Fall of 1876 and Spring of 1877.

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ALL our SUBSCRIBERS who can HONESTLY RECOMMEND THIS MAGAZINE, from their own experience, are kindly requested to INVITE THEIR FRIENDS to

TAKE THE GARDENER'S MONTHLY.

Edited By THOMAS MEEHAN.

FOR THE	AMATEUR, CULTIVATOR, BOTANIST, NATURALIST, and the LOVER of the COUNTRY.
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☞ **SEE FIRST PAGE, FACING COVER**

To Florists & Market Gardeners

We offer the following extract from our **Retail** and **Wholesale** lists of

SEEDS, PLANTS,

AND FLORISTS' REQUISITES.

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		Assorted "	.25
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Coleus, 25 best sorts,	$ 6 per 100	**Verbenas.**	Named in 60 varieties, $3 per set,	5 per 100
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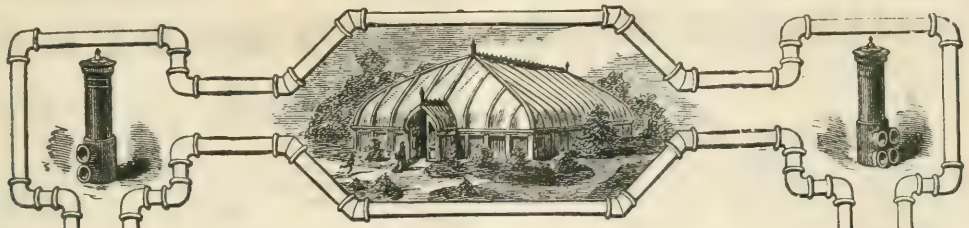
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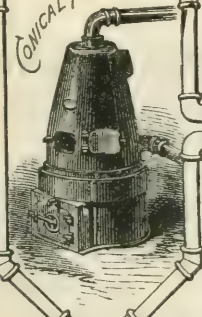


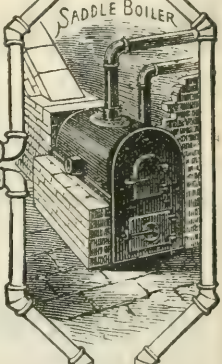
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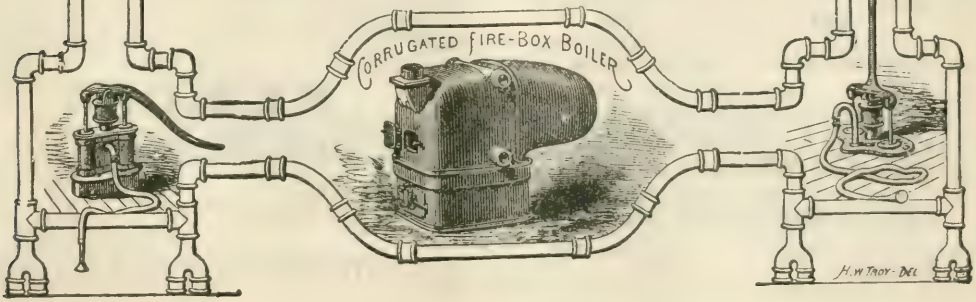
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1877 1877

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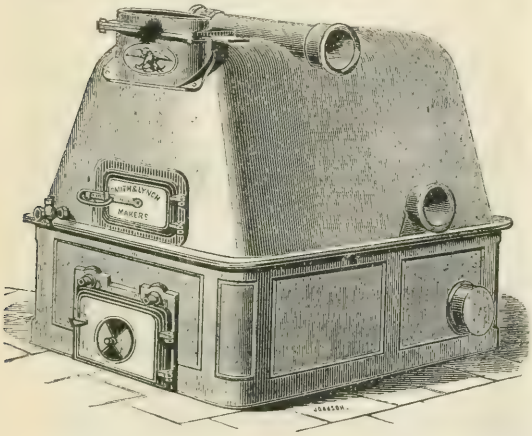
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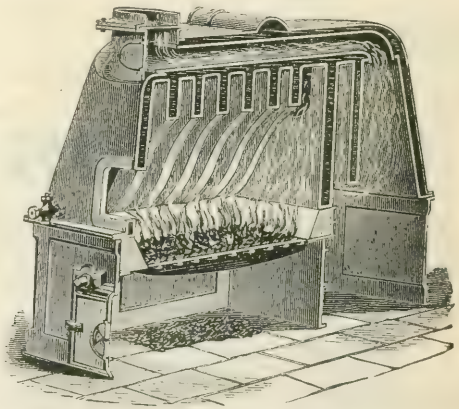
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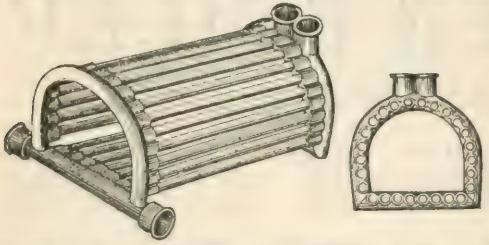
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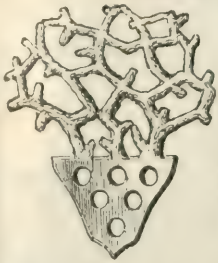
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Very superior in quality,			
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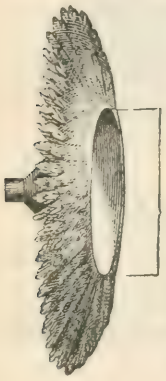
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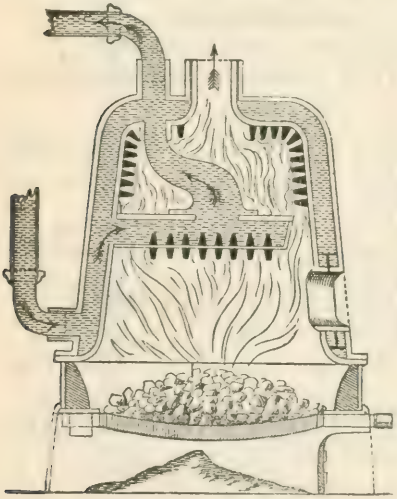
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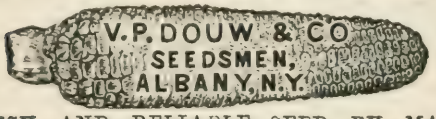
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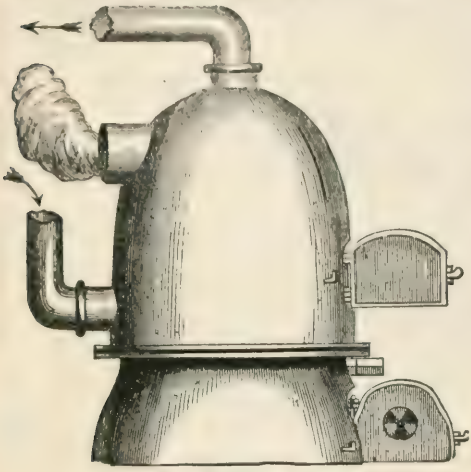


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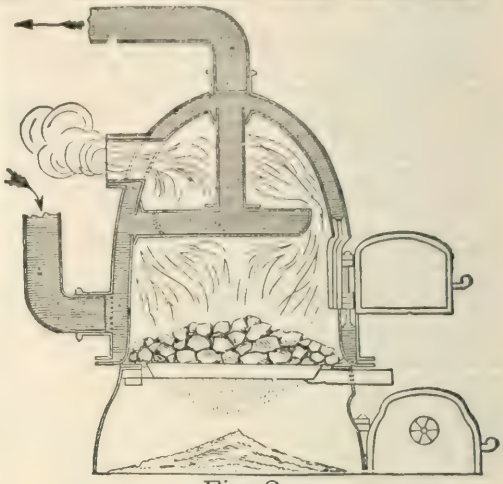


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THE GARDENERS' MONTHLY And HORTICULTURIST

EDITED BY THOMAS MEEHAN.

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JUNE, 1877.

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THE GARDENER'S MONTHLY AND HORTICULTURIST.

EDITED BY THOMAS MEEHAN,

Assisted by an able Corps of AMERICAN and FOREIGN CORRESPONDENTS.

It is published on the first of every month, at the office, No. 814 CHESTNUT STREET, PHILADELPHIA, where all BUSINESS communications should be addressed.

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TAKE THE GARDENER'S MONTHLY.

Edited By THOMAS MEEHAN.

FOR THE — **AMATEUR, CULTIVATOR, BOTANIST, NATURALIST, and the LOVER of the COUNTRY.**

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CHARLES H. MAROT, Publisher,

814 Chestnut Street, Philadelphia, Pa.

☞ SEE FIRST PAGE, FACING COVER

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We offer the following extract from our **Retail** and **Wholesale** lists of

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AND FLORISTS' REQUISITES.

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Twelve packets **Pansy Seeds**, as shown in colored plate in the January number of *Gardener's Monthly*, per set	$1.50	**Verbena**, from our own collection, a pkt.	$ .25
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" " **new fringed**, a pkt.	1.00	**Zonal** " "	.25
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		Assorted " "	.25
		Cyclamen Persicum giganteum, "	1.00
		Primula Chenensis, single in var. "	.30

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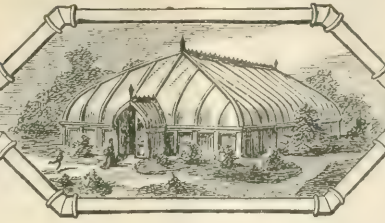
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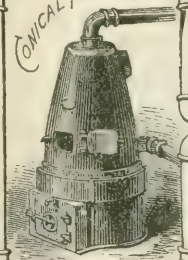


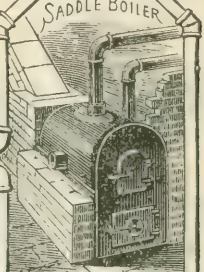
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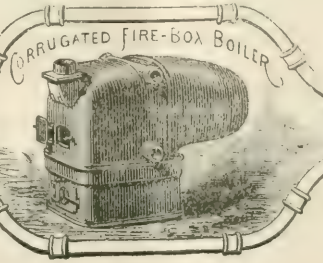
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5. **Sanguigna,** Blood red, latest, " " "

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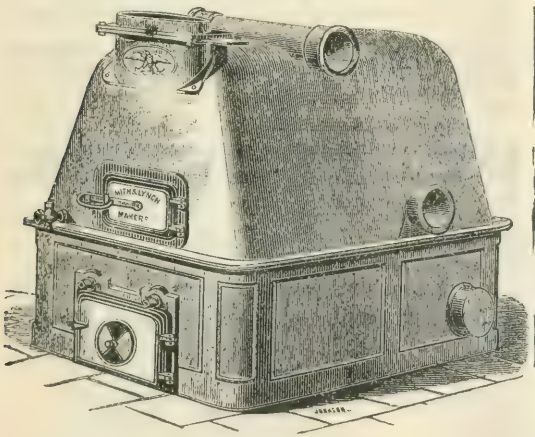
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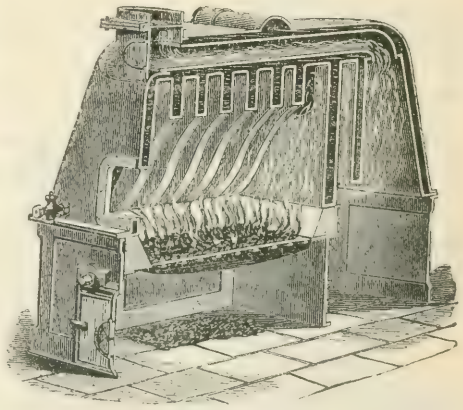
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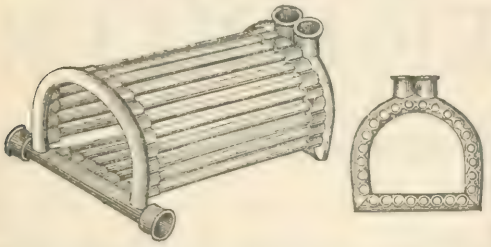
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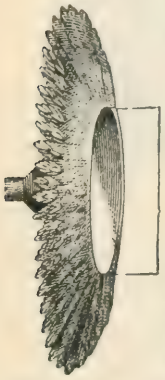


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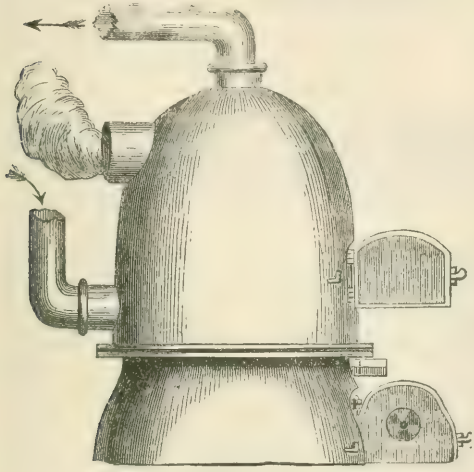


Fig. 1.

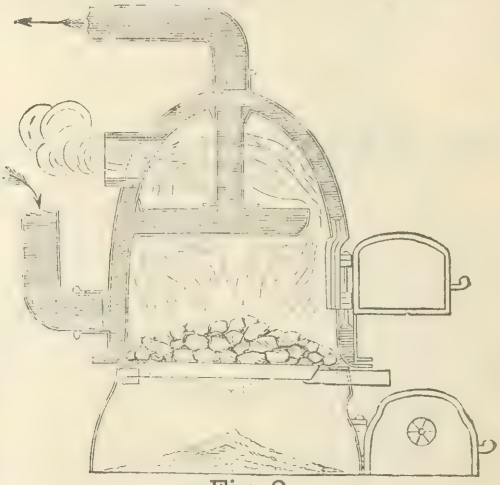


Fig. 2.

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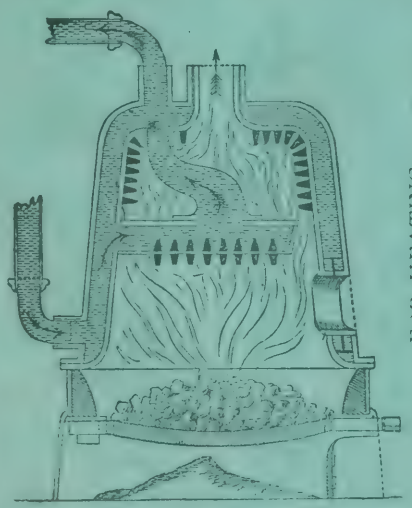
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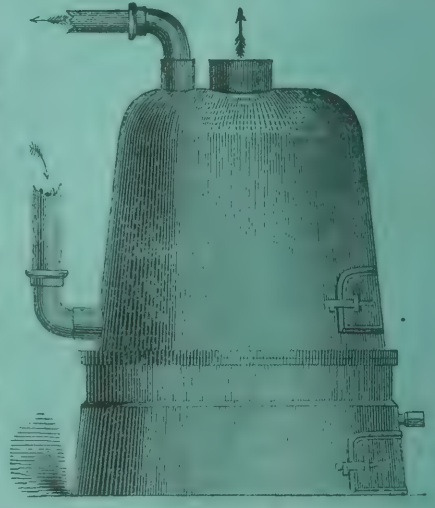
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Vol. XIX. No. 223.
(Combined Magazines, Thirty-second Year.)
JULY, 1877.

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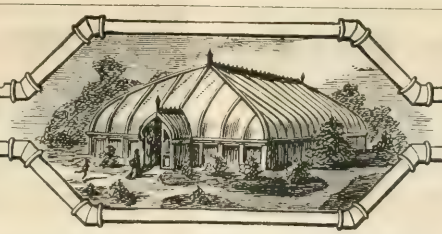
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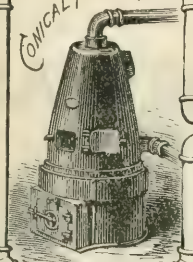
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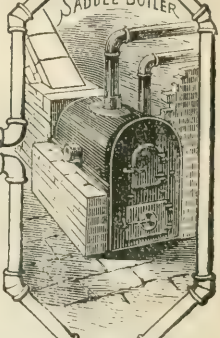
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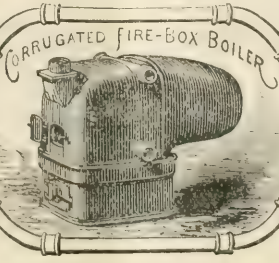


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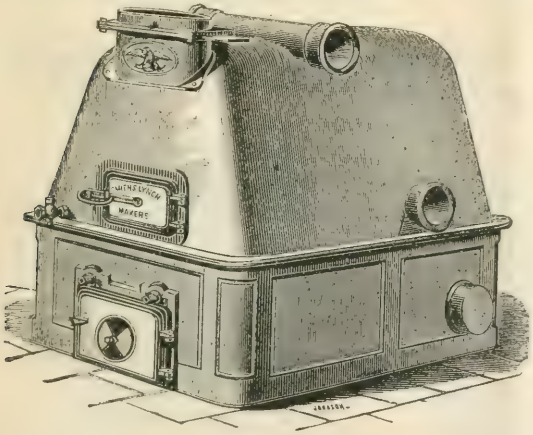
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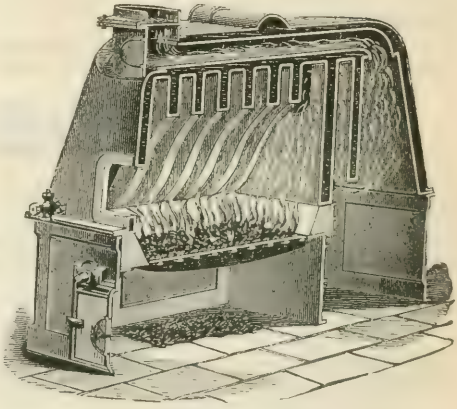
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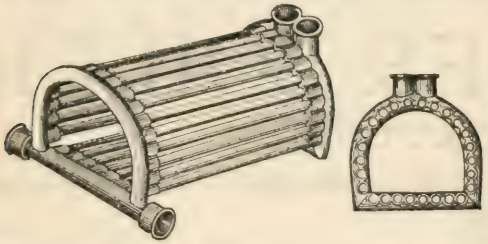
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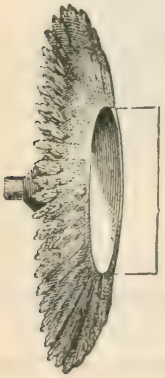


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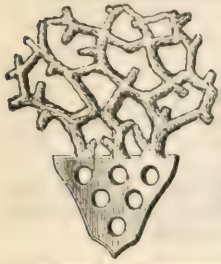
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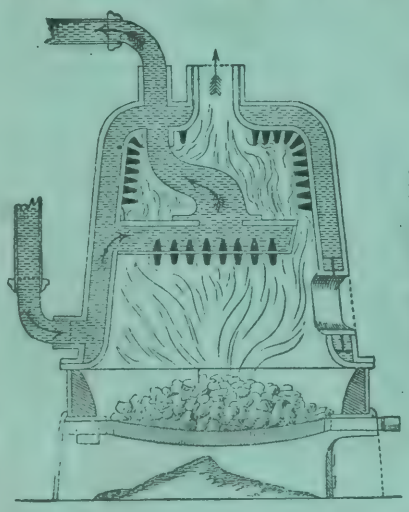
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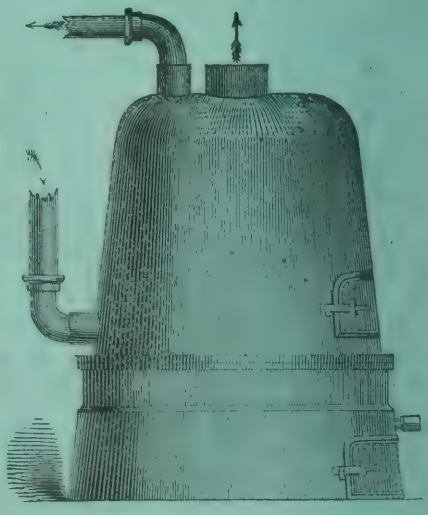
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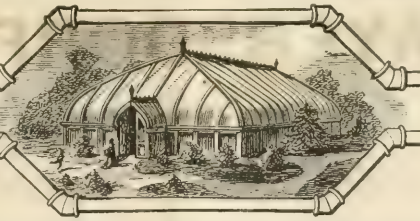
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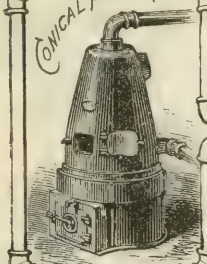
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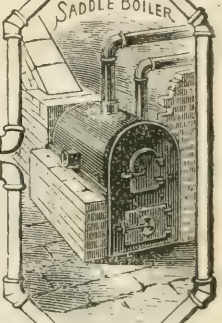
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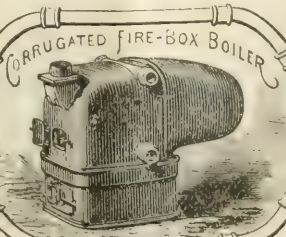


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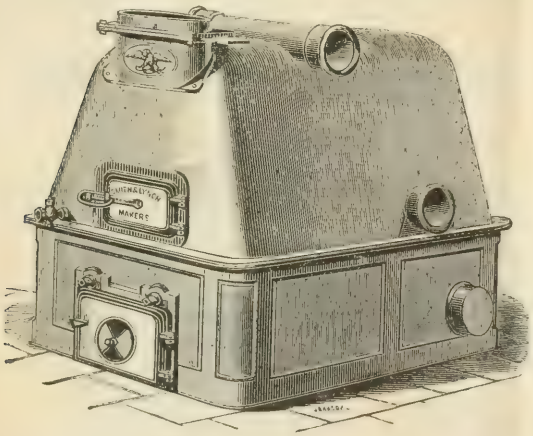
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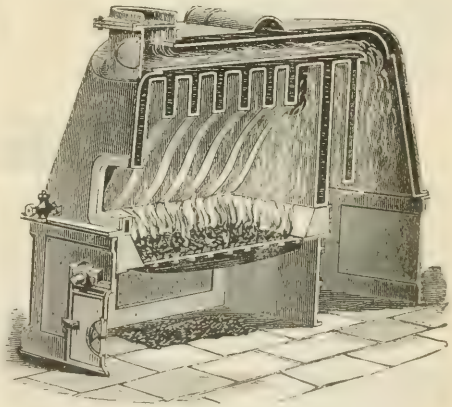
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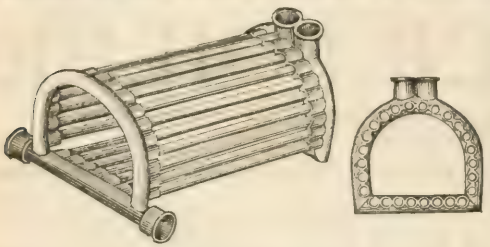
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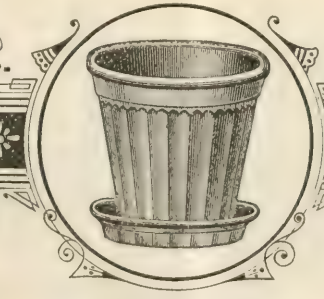
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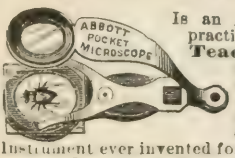
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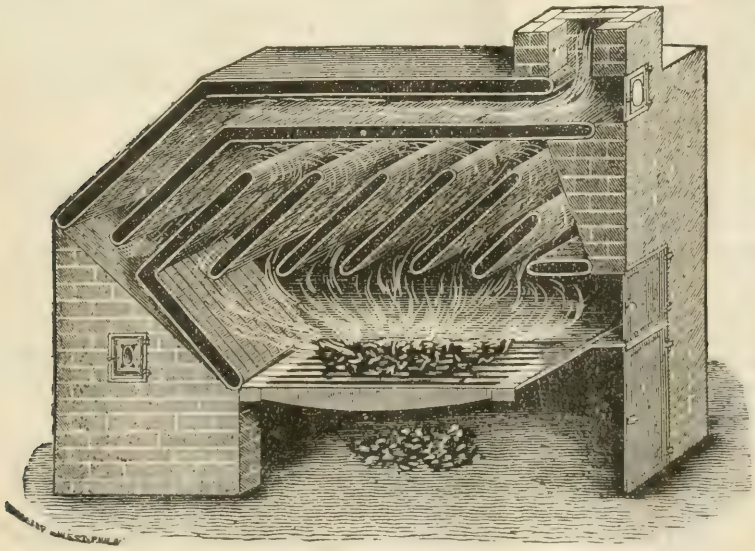
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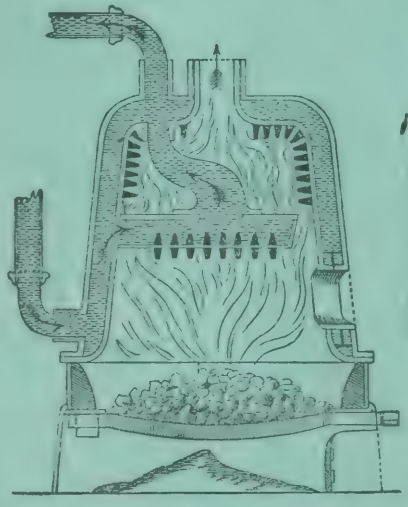
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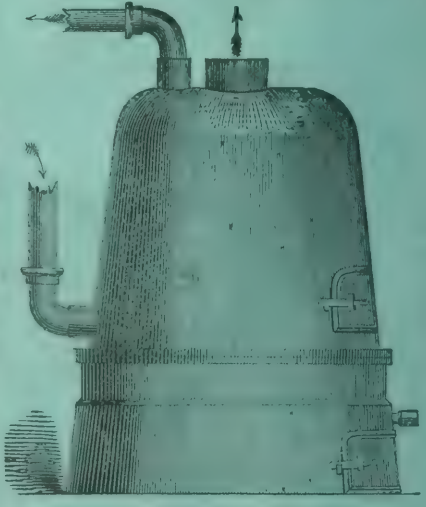
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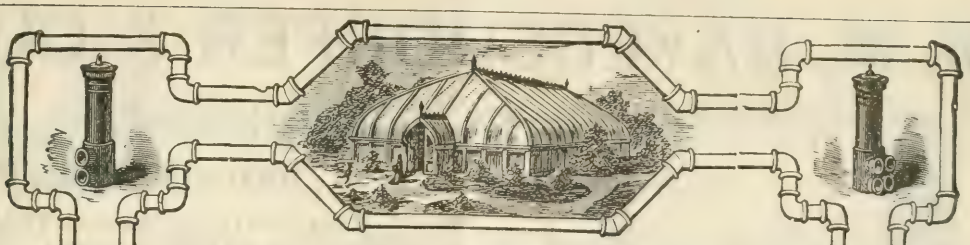
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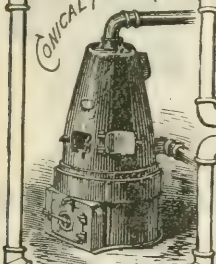
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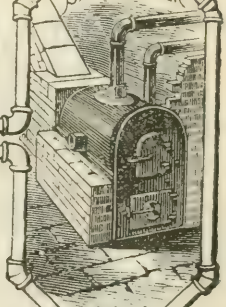
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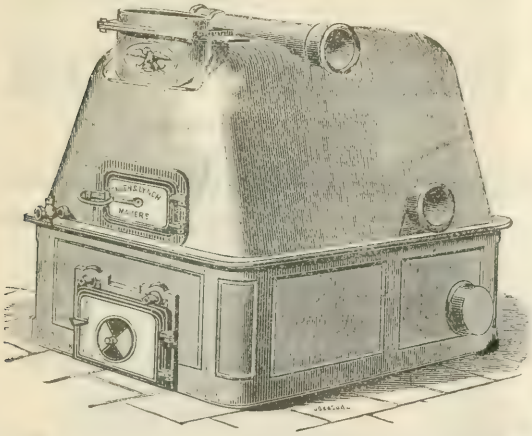
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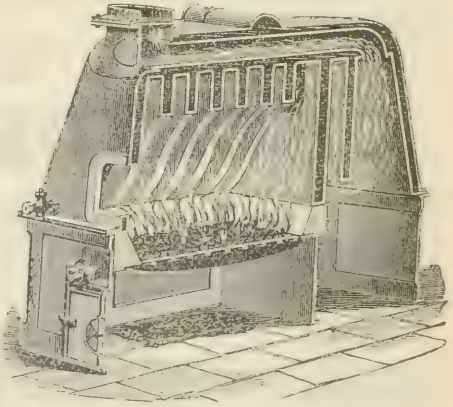
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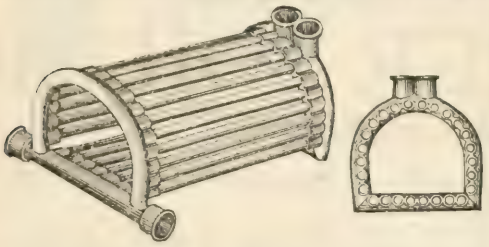
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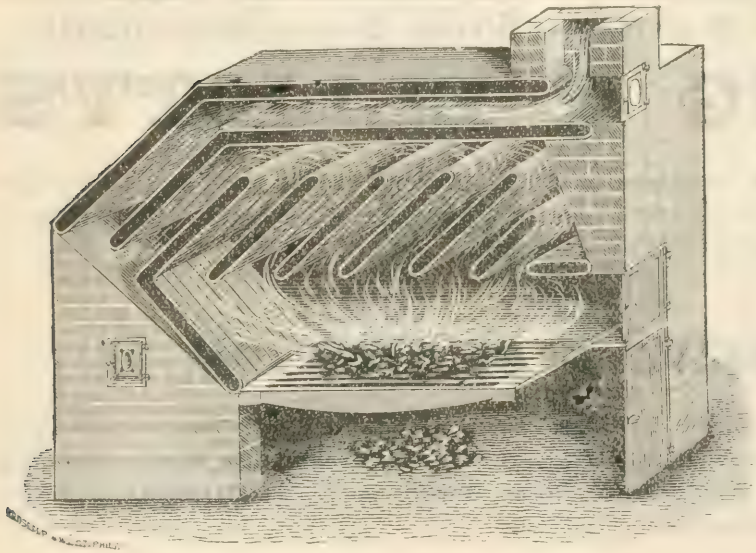
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Respectfully, Yours,

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100,000 APPLE TREES, 1 year old, 1 to 2½ feet high, well-rooted and very nice.

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GENEVA NURSERY,

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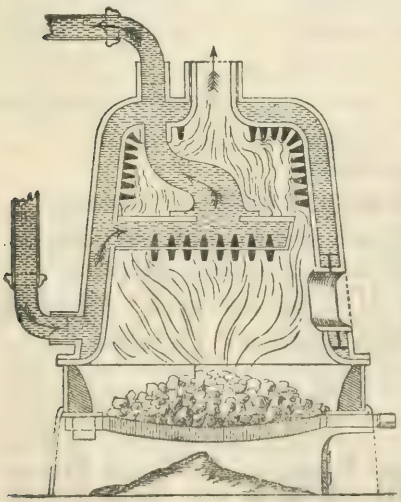
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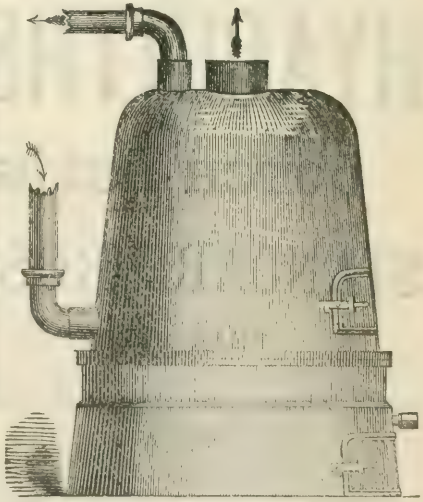
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200,000 Standard Pear Trees, 2 years old, 4 to 5 ft. and 5 to 6 ft. high; very stocky and well furnished. The largest and best stock of its age in the State.

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STANDARD ROSES,

PEAR SEEDS,

Immortelles in bunches, and Wreaths, &c., &c.

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125 varieties of Peaches, 75 varieties of Grapes, 100 varieties of Strawberries, &c. Catalogue, 10 cts.

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Bass Bark.

2000 lbs. best quality. Now is the time to lay in bark cheap for next year's budding.

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Winter Blooming Plants

And STOCK for FLORISTS.

Abutilons, Astilbe, Azaleas, Begonias, Bouvardias, Carnations, Dielytra, Primulas, Roses, Violets, &c., &c.

Smilax, Ferns, Double Poinsettia, Ficus Parcelli, Dracænas, Cissus discolor, Fuchsias, Aquilegia Chrysantha, Torenia Asiatica, &c., &c. All of which are in excellent health. Send for Price List, free to all applicants.

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Also other Strawberries, Raspberries, Blackberries and Concord Grapes. Send for Circular.

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We offer to the trade a large supply of **very fine** Peach Trees; also a large stock of splendid two and three year Apple, Wild Goose and other Plum Trees, Apricots, Nectarines, one and two year Grape Vines; also other Fruit and Ornamental Trees, Vines, Shrubs, Roses, &c., &c. Send for price list.

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50,000 PEACH TREES,
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And a General Assortment of Ornamental Trees, Small Fruits and Hedge Plants; for sale at bottom prices and of superior quality. Address,

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Glorious results of a **Useful Life**; climax almost reached: **FELTON'S NEW BERRIES, Cinderella** and **Continental Strawberries**; **Early Prolific and Reliance Raspberries.** The four **best** bearing, **best** carrying, **best** selling, **best** paying **Market Berries.**

Illustrated Circular and Price-list giving **history** and **full description.** Free to all. **GIBSON & BENNETT,**

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20,000 MAPLE TREES—5 to 15 feet. Silver, Sugar, and Norway; with a general stock of Fruit and Ornamental Trees. Prices to suit the times. G. W. THOMPSON, Stelton, N. J. sep2

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MAPLES.—Sugar, Norway, Silver and Ash-leaved. **ELMS.**—Ash, Linden and Poplar; 8 to 15 ft. At very low figures. Send for **Wholesale Catalogue.**

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GRANDIFLORA, from 1 to 2½ feet. Other Shrubbery in great variety.

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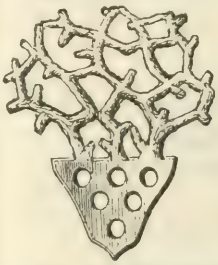
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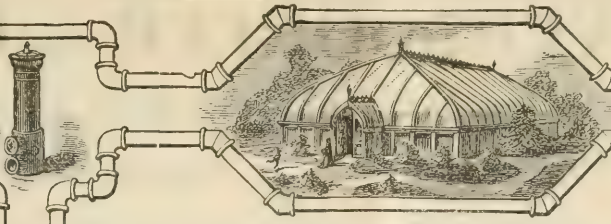
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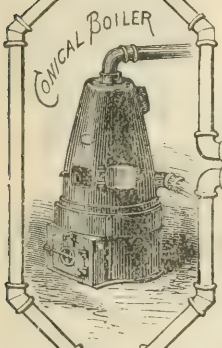
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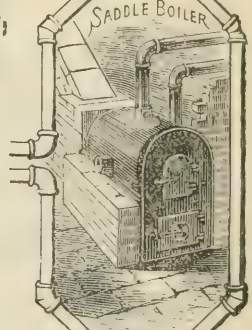
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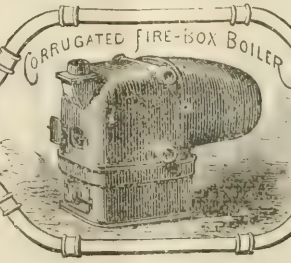


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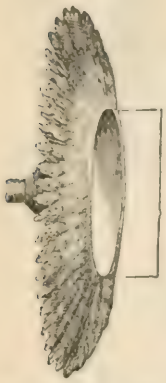
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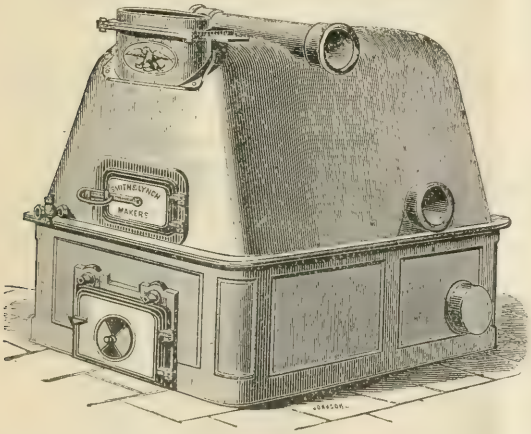
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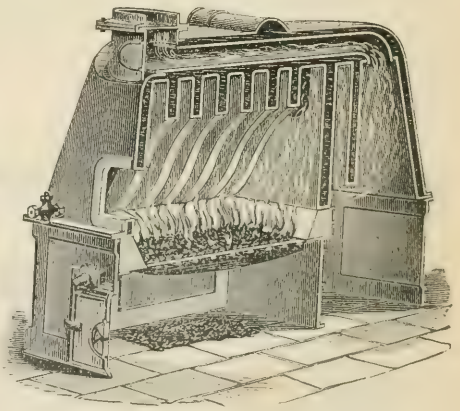
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Norway Fir, from 9 in to 10 ft.
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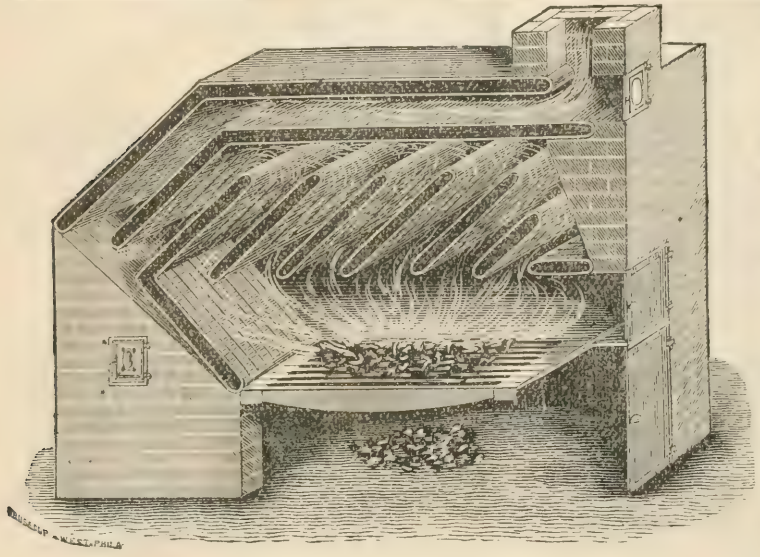
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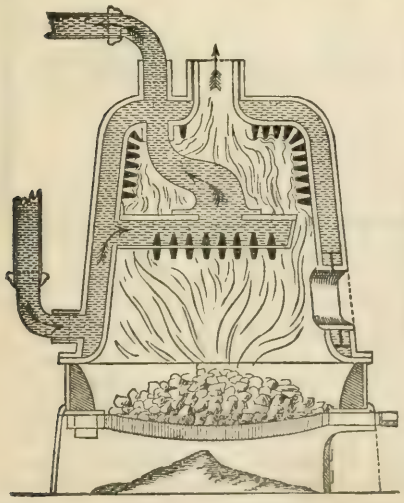
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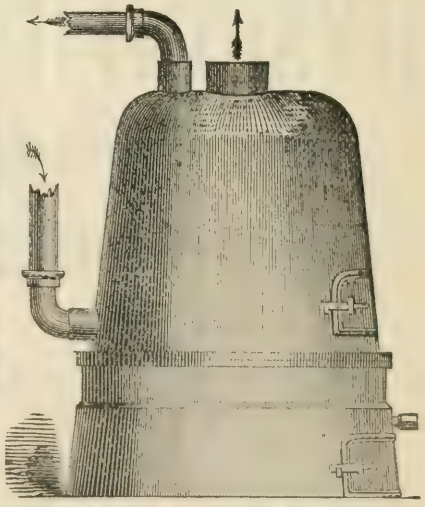
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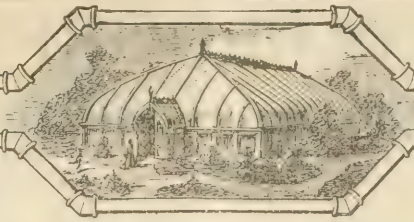
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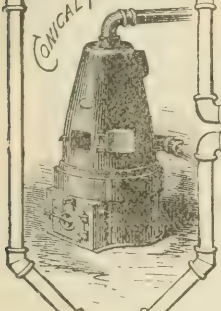
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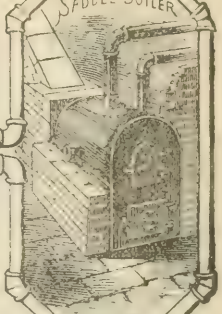
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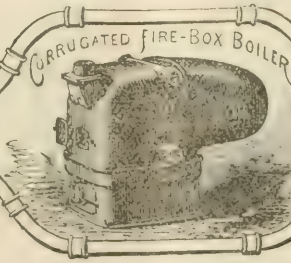


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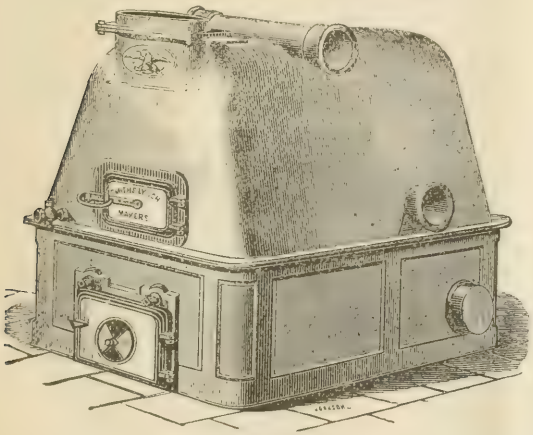
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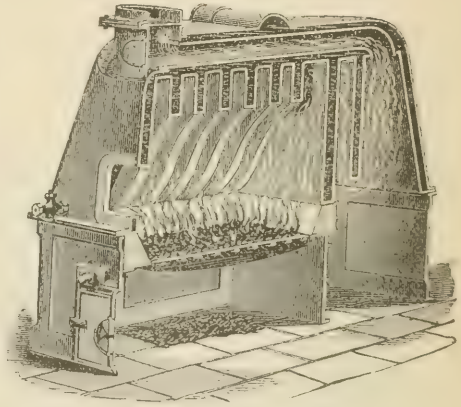
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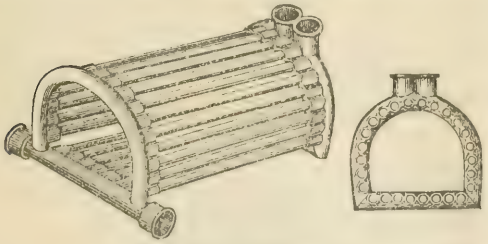
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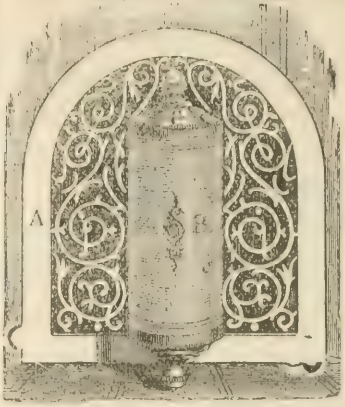
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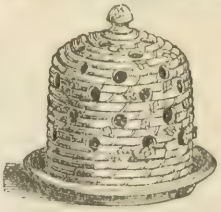
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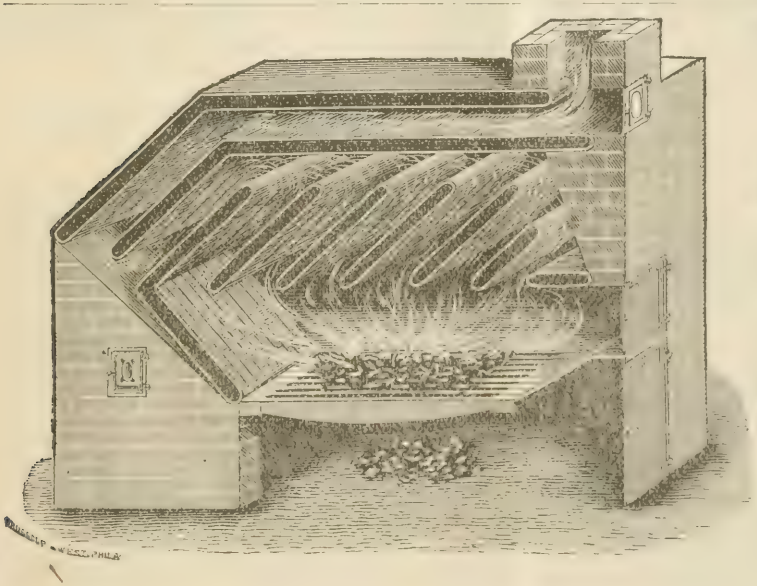
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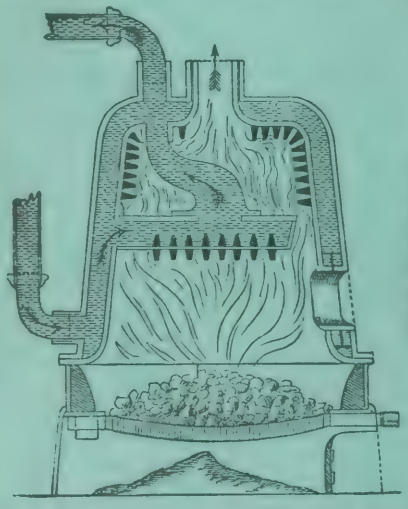
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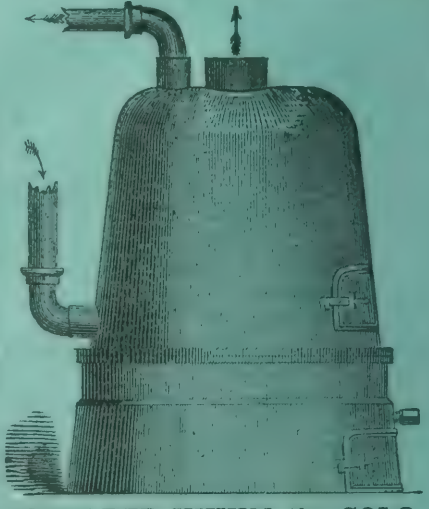
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(Combined Magazines, Thirty-second Year.)
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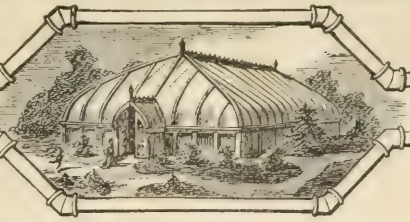
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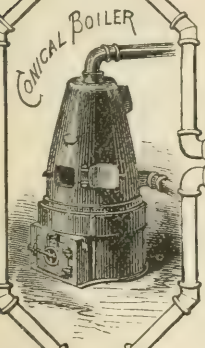
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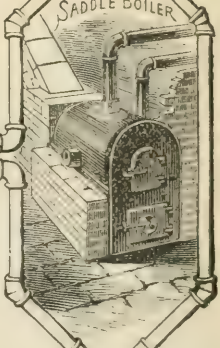
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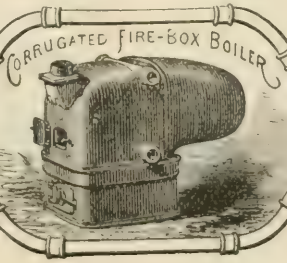


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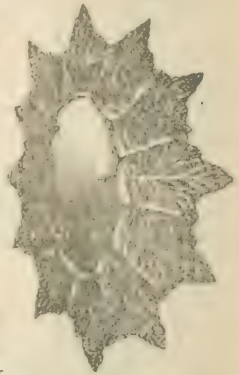
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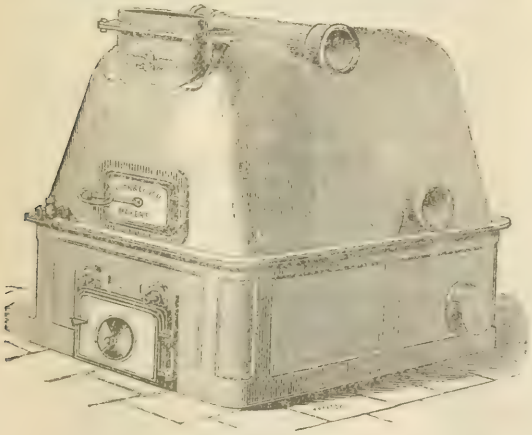
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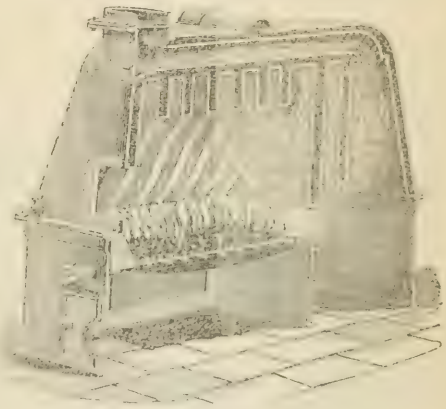
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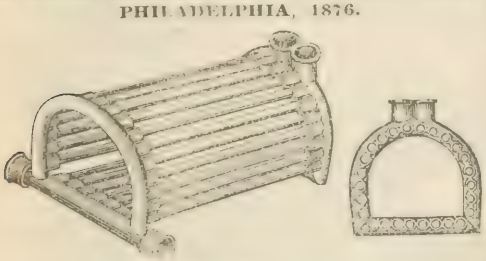
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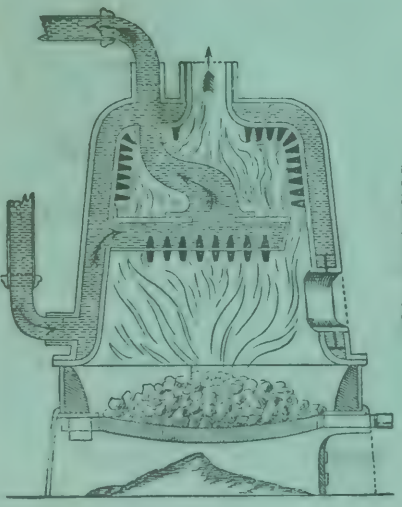
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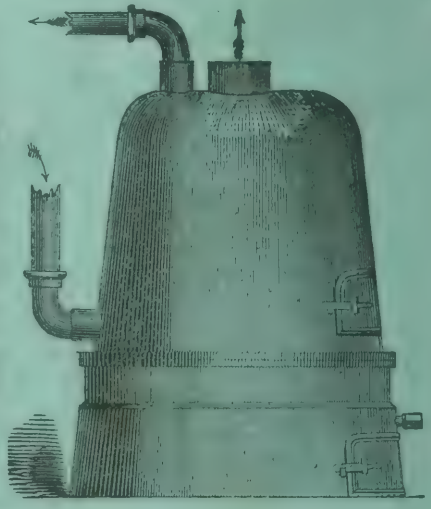
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